American Fruit Grower

JUNE • 1953

"My Dodge truck does a wonderful job"

. . . says **ROBERT W. BROWNING**
350 Hoskins Road, Bloomfield, Conn.

"In my farming I can't move without a good truck. My Dodge truck does a wonderful *job*. I use it for every purpose you can think of, and it never lets me down. There is plenty of reserve power for even the biggest loads. Another thing that is important to me is the way the Dodge can get in and out of tight places. We real working farmers know that a truck for general farm work must have really good maneuverability.

"I plan to buy another Dodge truck when this one needs replacement, but that probably won't be for awhile because of the way the present one is standing up."

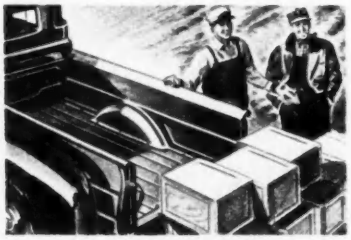
* * *

Real, down-to-earth farmers like Mr. Browning buy trucks on proved facts, not promises. No doubt you're a careful buyer and like to get the most for your money, so better see your Dodge dealer. He's a reliable businessman; he'll give you hard facts, honest value. Visit him next time you're in town.

New Dodge "*Job-Rated*" trucks give you even more for your money!

More horsepower, more braking power: 100 to 171 h.p., with proved Dodge economy through the line. Stepped-up braking, less pedal pressure in 1- through 2½-ton trucks. Dodge-Tint glass, new heaters available on all models.

New, no-shift transmission: Truck-o-matic transmission with gyrol Fluid Drive available in ½- and ¾-ton trucks! Saves gearshifting, retains clutch for rocking out of mud, snow. Dodge is easier to handle than ever!



New, longer ½-ton pick-up: New 116" wheelbase ½-ton pick-up has a foot more of load length . . . carries bulkier loads. New tighter tailgate sealing on all pick-ups and expresses. See your friendly Dodge dealer.

DODGE "Job-Rated" TRUCKS

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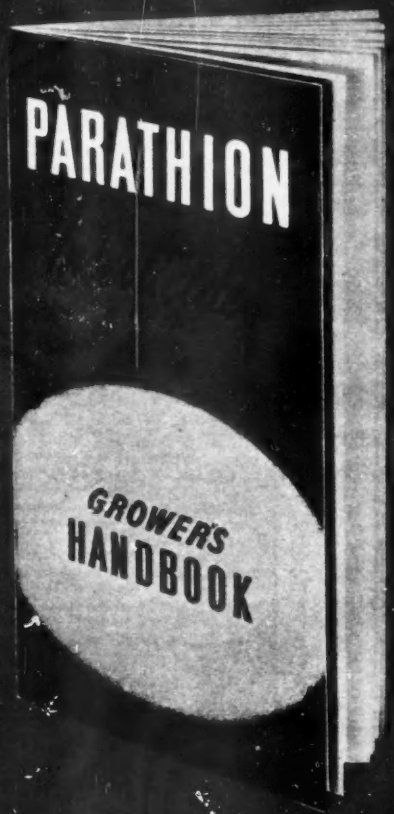
Reduce production costs by making parathion basic in the spray tank.



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25,000 Cu. Ft. Per Minute!

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. . . SPEED . . . COVERAGE!

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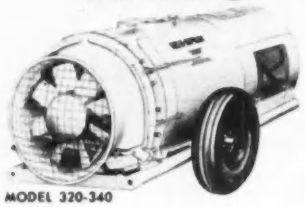

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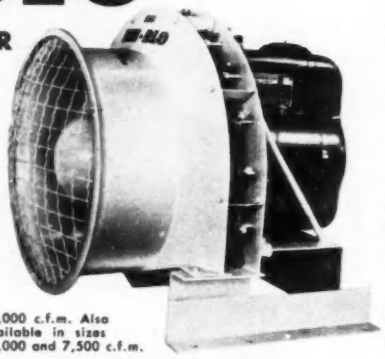

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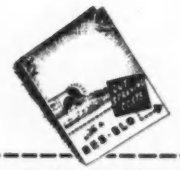
- TWO-WAY OR ONE-WAY OPERATION
- COSTS LESS TO BUY AND OPERATE
- INSTALL IT YOURSELF — EASILY



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JUNE 1953
VOL. 73 No. 6

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"On Its 14th Year-

NEVER TOUCHED THE ENGINE!"

reports Reister Bros., Sparta, Michigan

Reister Bros. farm 320 acres, with 100 acres in fruit. Their 1939 Cat D2 Tractor is shown here pulling 3-14s. New D2s have 32 drawbar horsepower, and would handle 4-14s under same conditions.

Mar. 28, 1939, George Dinkel and his sons, Earl and Wilbur Reister, purchased the Caterpillar D2 Tractor shown here. That was more than 14 years ago. Here's proof of their wise choice: The tractor is more than 8,000 work hours old now, and the engine has never been touched for repair. The original pumps and valves have never been removed. Head and pan have never been off. It still turns in an honest day's work on 1½ gallons of Diesel fuel per hour. Small wonder the Reister Brothers say, "There's nothing like a Cat* D2 Tractor . . . no other power can compare with it!"

Here are facts and proof of Caterpillar dependability. Figure how they apply to you: How many tractors have you worn out in 14 years? How many times have you missed a spray date because of tractor failure—or because your orchard was too muddy for wheel tractors? How many thousands of gallons of high-priced fuel have you poured into your gasoline tractor when a Caterpillar Diesel Tractor could have saved you 60% to 80% on your fuel bill? How many sets of tires have you gone through in 14 years? When the Reister Brothers add up all these savings, they've paid for their Caterpillar Diesel Tractor many times over. Any way they look at it . . . any way *you* look at it, you're money ahead with a Caterpillar Diesel Tractor. See your Dealer for a free demonstration!

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EARTHMOVING EQUIPMENT

CATERPILLAR*
Diesel Orchard Tractors

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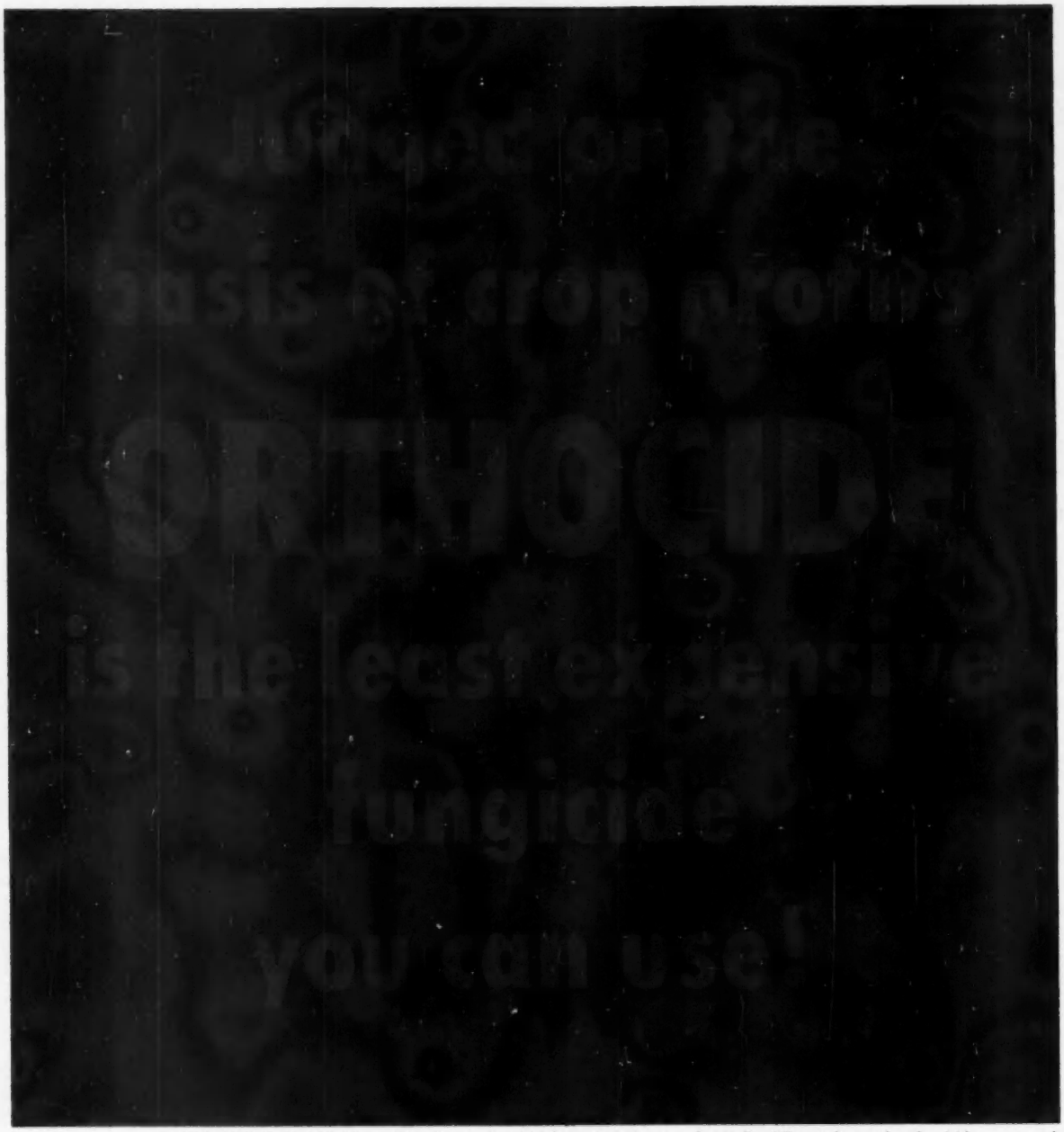

*ORTHOCIDE 50 Wettable contains the new fungicidal chemical, Captan, chemically different from other fungicides now used.

For best results ORTHOCIDE must be used as a part of a complete ORTHO program. For full details on the use of ORTHOCIDE, contact your nearest ORTHO Dealer or Fieldman or any California Spray-Chemical Corp. office.

Other outstanding ORTHO Sprays and Dusts are:

ORTHOPHOS 4 **ORTHOTRAN** **TAG**
VAPOPHOS **PERSISTO** **ORTHENE 3-D**
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ORTHO Lead Arsenate

World leader in scientific pest control

ORTHO
SCIENTIFIC PEST CONTROL

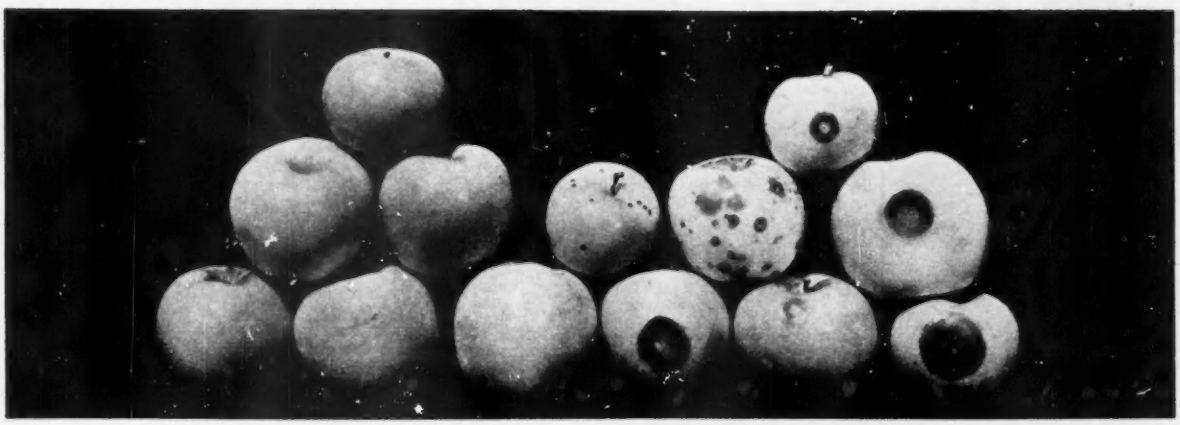
ORTHOCIDE PROVED } by test after test

Increased yields 8 bushels per tree! Case history from Maryland: Two years ago 400 apple trees that were sprayed with ORTHOCIDE averaged 12 bushels of fruit per tree. Another 400 trees in the same orchard got a regular sulfur treatment and averaged only 3.7 bushels per tree.

Last year this same grower used the ORTHOCIDE program on his entire 3,000 acres. Ninety per cent of the crop (about 300,000 boxes) made U.S. extra-fancy or fancy in contrast to his sulfur-sprayed 1951 crop which received only a commercial rating.

Saved Money—And Got Bigger Returns! Case history from Michigan: After spraying two apple orchards of 80 acres each—one with ORTHOCIDE—the other with sulfur, a Van Buren County grower reported better looking apples with ORTHOCIDE. On the ORTHOCIDE-treated apples he saved almost $1 per box in sorting and grading costs. Yield from the sulfur-sprayed acreage was 12,000 bushels. Yield from the ORTHOCIDE-treated acreage was 14,000 bushels.

"100% control of Scab" reported! Case history from New Jersey: A Camden County grower reported "100% control of Scab" on 60 acres of apples after using ORTHOCIDE for the past 2 years. Although admitting this new fungicide cost more *per pound* than sulfur, this grower pointed out this was more than offset by the fact that he put on fewer pounds of ORTHOCIDE and about *20% more* of his apples made U.S. fancy and #1 grades.



The apples shown above were in cold storage for 176 days. Before going into storage those on the left were treated with ORTHOCIDE. Those on the right were not treated. When removed from storage at the end of that time the treated apples showed only 0.66% rot compared to 12.72% in those not treated by ORTHOCIDE.

CALIFORNIA SPRAY-CHEMICAL Corp.

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T.M.'S REG. U. S. PAT. OFF: ORTHO, ORTHOCIDE, ORTHOPHOS, VAPOPHOS, ISOTOX, VAPOTONE, TAG, ORTHENE, PERSISTO

Compare ORTHOCIDE with sulfur—

You get better finish
You get increased yields of saleable fruit
You get better color
You get outstanding scab control
You get easier handling
You get better storage qualities

The increased yields resulting from the use of ORTHOCIDE can more than pay for the actual cost of the fungicide. Prove the true economy of ORTHOCIDE to yourself! Use ORTHOCIDE 50 Wettable in the ORTHO program and let the results speak for themselves. Bushel for bushel ORTHOCIDE is your lowest cost fungicide.

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CARVER IRRIGATION PUMP for your needs

for SPRINKLERS

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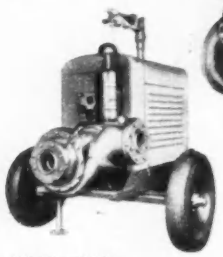
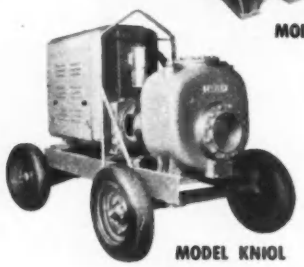


MODEL 5WHI

for OPEN DITCH

MODEL FXL



MODEL KNIOL

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CARVER PUMPS

LETTERS TO THE EDITOR

Finds Advantages to Dwarf Planting

Dear Editor:

It looks as though we are going to have fruit from our Clark dwarfs this summer. The Jonathans were too heavily budded and we had to thin them to keep the trees growing. It is amazing that those Clark Jonathans, Starking, Golden Delicious, and Turley just take no pruning at all while the regular trees take some fighting from start to finish. Starking seems to me to be a little shy of branches.

The Jonathans are beautiful, shorter, and more spreading. Golden Delicious had a few apples last year. The trees are sturdy, about as large as regular trees in the third spring, but more spreading. The Turleys were just set last spring, so we can't tell much about them yet.

All of these are put in as fillers in a planting with permanents of the same varieties. This is probably not the way to use dwarfs, but if one kind falls over or dies from drought or wet feet we will have an orchard left.

This spring I received word from two of the nurserymen with whom I deal that they could not supply me with the full count of trees even though I ordered them two years ago. It looks as though dwarfs may be hard to procure in commercial quantities until the most suitable understocks for various varieties are determined and their use becomes more widespread. For the time being we will probably have to order custom-made trees about two years ahead of time because the nurserymen can't keep on hand large quantities of all possible combinations of varieties.

I certainly hope we may be able to find good combinations of dwarfs to use because there would be so many advantages to a smaller tree than what we have been using.

Vincennes, Ind. Mark Byers

"Old Home" Experiment

Dear Editor:

The article on rootstocks by R. B. Tukey in a recent issue of AMERICAN FRUIT GROWER prompts me to tell about my experiments with the Old Home pear. After many years of research at the Agricultural Experiment Station, Davis, Calif., a report was published a few years ago in which its author, L. H. Day, suggested, 1) that selected strains of Old Home be budded on quince as a starter, 2) that the trees be planted deep enough so the quince root will not sucker, will not dwarf the tree, and will die out after pear roots have developed above the union, and 3) that the trees be budded high in the orchard so as to have strong blight-resistant frameworks.

At my place, variation in the seedlings is amazing, all characters showing great differences. Some types grow rapidly and have the most desirable habits of growth. Unfortunately, growers are afraid of the quince root, and they prefer finished trees.

From the beginning of my project four years ago my aim has been to use roots of my best trees as starters, at the same time grafting the commercial variety to the top of the tall cuttings. In other words I use sticks of my best Old Home strains grafted at both ends. I now have some growing. People tell me, "You may have something there." I think I have. If I am dead when the demand is born, there will still be an orchard left of the best Old Home trees on their own roots.

I have tried 52 methods for rooting cuttings of this blight resistant stock. My best one was about one per cent successful. Has somebody else done better?

Newcastle, Calif. A. Laforge

Try a common nurse-root, whip graft, using any pear as the rootstock on which to graft the Old Home scions. Twist a copper nursery label wire tightly at the union and plant deep. As the graft grows, the wire will cut off the nurse root and will favor rooting by the scion. F. L. O'Rourke and H. B. Tukey of Michigan State College have used this method successfully in propagating Malling rootstocks, and several nurseries have followed suit.—Ed.

Case History of a Lost Apple Sale

Dear Sir:

I would like to point out one sure way to ruin many months of hard work spent in building up a worthwhile product.

For many years I have been in the habit of passing out apples the same as some people pass out cigars. I purchase these apples by the box or basket and try to get the best possible grade. Up until this year I have never been disappointed.

This year I didn't give it a thought—just had the apples ready to pass out. You may be able to understand my feelings on opening up a box to find apples the size I usually associate with a 130- or 140-pack. The apples looked lost in their Kys-Pak trays. To top it off, a blank space loomed up in the middle of the pack where one apple was missing.

I usually get apples from New Hampshire, but this year none were available and I got them from New York. Evidently the New Hampshire packer used his head and, realizing he had no apples that warranted a 100-pack, refused to supply them. The New York packer? Well, I give you one guess as to how much he will be able to sell me in the future.

A nice pack looks good and has sales appeal, but if the article itself is poor an attractive pack will not remedy the situation.

Wilmington, Del. Paul F. Berry

The Rome Beauty

Dear Editor:

I was interested in the article about the Gillette apple by Frank W. Ball which appeared in a recent issue of AMERICAN FRUIT GROWER. I would like to make a few corrections and explanations. I am nearly 87 years old, the son of Nelson Cox, grandson of Thomas Gardner, and great-grandson of Joel Gillette. The Turleys were not descendants of the Gillettes as far as I know.

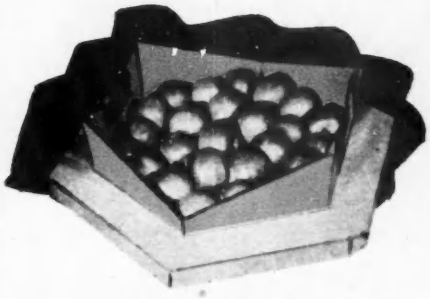
Captain H. N. Gillette was a first or second cousin to Alanson Gillette, and he showed the Rome Beauty at the Ohio State Horticultural Society about 1847. About 1889 people wondered who suggested the name "Rome Beauty," but no one knew. It was then that George Walton (not Waldon) wrote saying that he was the one who had suggested the name, probably about 1832.

Ironton, Ohio U. T. Cox

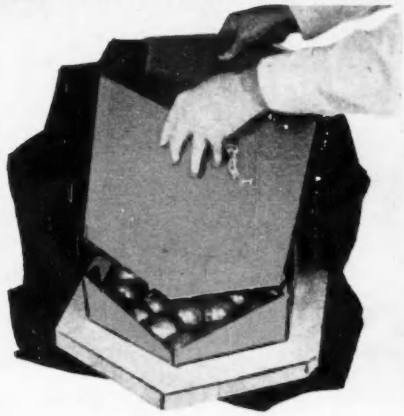
New and Best By Test

Here Is What The Fruit Industry Has Always Wanted

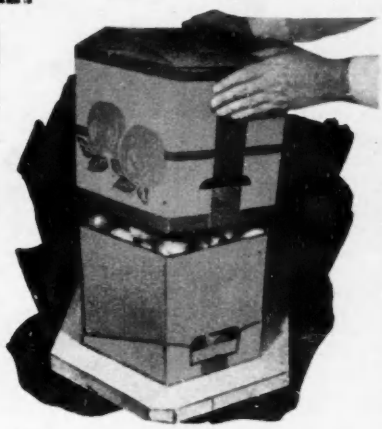
● PACKING PROCEDURE FOR BOXKET



Inverted cover in facing form, fruit faced.

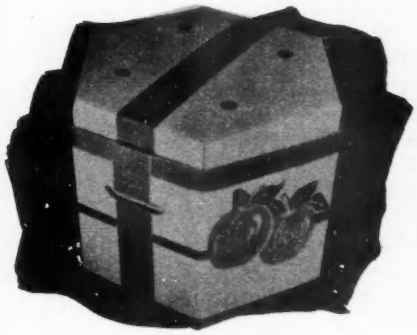


Insert liner in cover.

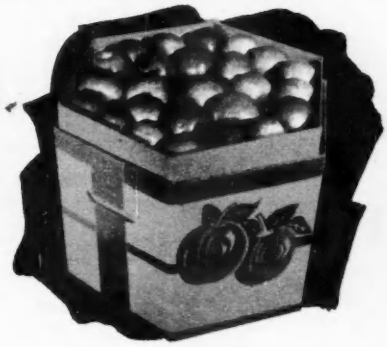


Slide body over filled liner, ready for turner.

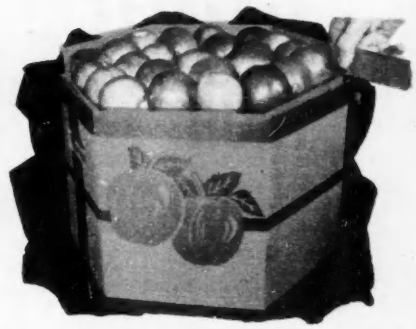
● DISPLAY PROCEDURE FOR BOXKET



Box Fully Packed



Remove Lid



Tear off top of liner where perforated. Result is undisturbed Bulge Face pack.

Check These Proven Advantages

- It packs like a basket with undisturbed bulge face.
- There is no weight on fruit.
- The Boxket eliminates rim cut on top and stave cut on bottom.
- It eliminates cushions, caps and labels.
- They cost less and you can use present equipment.
- These Boxkets save storage space, stack and truck well.
- They are available in color, and can be specially printed for you.
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WABASH FIBRE BOX CO.

put color in their cheeks

with

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FRUIT FUNGICIDE 341

CRAG Fruit Fungicide 341 is recommended for apple scab control in many states, particularly to growers who are also interested in improved fruit color and finish. You know clean fruit with better color and finish commands the highest prices on retail markets. That can mean more money in your pocket if you use CRAG 341.

You can also use CRAG 341 on sour cherries for effective control of leaf spot, and for better fruit size too.

Check your county agent or state experiment station today for their recommendations on the glyoxalidine fungicide, CRAG 341.

PREVENT WEEDS — *before* they become a problem . . . with CRAG Herbicide-1.

CRAG Herbicide-1 can help you cut your weeding costs by preventing weeds in strawberries, raspberries, corn, gladiolus, asparagus, perennial flowers and nursery stock. This new weed preventer kills weed seeds as they are germinating. By preventing weeds before they become a problem you can substantially cut your weeding costs and increase yields as well.

Write for FREE illustrated folders on CRAG Herbicide-1 and on CRAG Fruit Fungicide 341.

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It is important to apply enough water during each irrigation to restore the soil to "field capacity."

How to Operate SPRINKLERS *Most Efficiently*

Know your soil, then apply these fundamental rules to obtain maximum results from your irrigation system

By JOHN R. CARREKER

LAST YEAR I asked W. B. Camp of Bakersfield, Calif., how growers could learn to do the best job of irrigating. Mr. Camp moved from South Carolina to California many years ago and through years of experience has learned successful irrigation techniques.

His answer to my inquiry, "Through experience and study of the conditions on the field being irrigated," is advice which is applicable to everyone who is planning to begin or is already irrigating crops of any and all kinds.

Developments in irrigation throughout the eastern, southern, and midwestern states have been extensive in recent years. But there is much we still need to learn about this important practice. Results of research studies and information gained on an irrigation study trip through the western states in 1952 indicated to me that in order to operate a sprinkler irrigation system to best advantage the following basic rules must be observed:

1) The rate of water application should be adjusted to the infiltration rate of the soil. Water applied too fast will cause runoff. Water and fuel will be wasted. If the water is applied too slowly, evaporation losses will be high.

2) The area watered each run should be large enough that the total acreage will be covered in the desired number of days. The amount of water used each day by the crop irrigated and the water-holding capacity of the soil govern how often and how much the land needs irrigating.

Enough water should be applied during each irrigation to restore the soil to "field capacity." That is, the soil should be wetted to its maximum water-holding capacity to the depth that roots use the moisture. The average water-holding capacity for most soils for each foot of depth and the average amount of water needed at each irrigation are:

Soil Type or Texture	Water-holding capacity Inches	Water to apply each irrigation Inches
Light-sandy	1.25	1.0
Medium-sandy loam	2.25	1.7
Heavy clay	3.67	2.0

3) The spacing between the sprinklers and the water pressure at the sprinkler should be adjusted to give even distribution of the water. There should be no more than 20 per cent variation in pressure along the line of sprinklers. The spacing recommended by the manufacturer should be followed. The effect of sprinkler spacing and output on rate of application is shown in the tabulation on page 42.

4) The water supply should be ample to furnish the output rate for greatest number of sprinklers used.

5) The pump and engine should have enough capacity to supply the maximum quantity of water needed at the right sprinkler pressure.

6) The main and lateral pipes should be large enough to handle the maximum flow of water with a minimum of friction loss. Extra horsepower and fuel are required to overcome friction. The power loss due to

(Continued on page 42)

The author, JOHN R. CARREKER, is agricultural engineer with the USDA at Athens, Ga.

CONSERVING WATER In the Orchard

Soil management practices have an important bearing on the water-holding capacity of soils

By ELDON S. BANTA

ENORMOUS quantities of water pass through a tree during the growing season. On a hot, dry day a mature apple tree may give off as much as 200 gallons of water through its leaves. If you consider 35 trees per acre this would mean that an acre of soil would give up 70,000 gallons, or almost two and one-half acre inches of water.

In addition, water is lost by direct evaporation from the soil surface and by drainage through the soil.

Dr. Archie Van Doren, superintendent of the Tree Fruit Experiment Station, Wenatchee, Wash., reports that many western growers consider 40 inches of water per acre per year necessary to grow a full crop of apples. But under sprinkler irrigation they scale this down to 25 to 28 inches. Frequency of rainfall, or irrigation, as well as quantity and intensity are of major importance in orchard soil management.

Trees have a natural mechanism which helps them conserve soil moisture. When moisture is scant in the root zone, the rate of transpiration (evaporation of moisture from leaves) is greatly reduced. Only small amounts of water enter the roots and pass through the plant when transpiration is low.

Temperature and humidity also affect the rate of transpiration. At low temperatures and high humidity a tree may transpire only a few gallons of water per day. If soil moisture is low the process may be almost at a standstill.

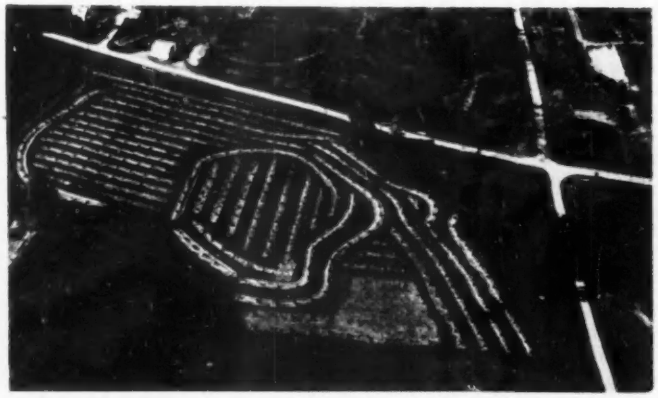
We have just so much rainfall during the year. Our problem is to learn how we can get more moisture into the soil and keep it there.

Soil type or profile has a great deal to do with the water-holding capacity of the soil.

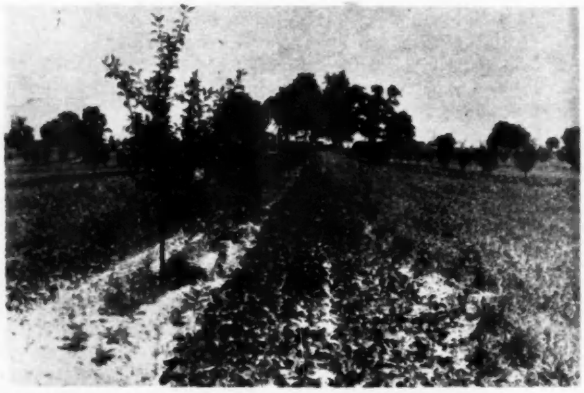
Let's consider the entire soil area under the trees to the depth of the root zone as a huge water reservoir. Here is held, temporarily at least, all the water that goes into producing the fruit crop. The importance of soil profile lies in the fact that soils vary in their water-holding capacity as well as in how deeply and thoroughly roots can explore them. A good orchard soil permits extensive root growth to a depth of at least four feet and preferably more.

The percentage of sand, silt, clay, and organic matter in a given soil and to a given depth determines to considerable degree the quantity of water the soil can hold. No tillage practice can change the percentage of these materials with the exception of organic matter. Soils high in sand and low in clay hold less water and permit deep root growth. On the other hand, soils high in clay and low in sand and

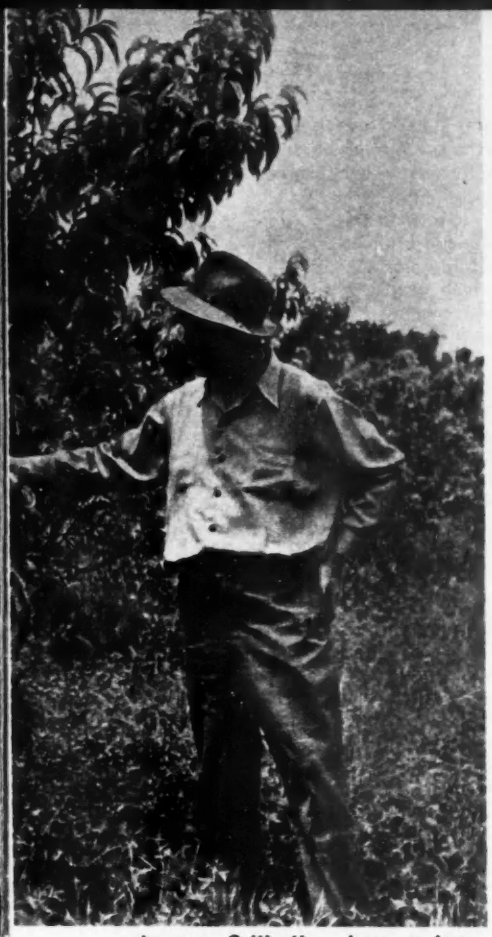
Earl Byers, Vincennes, Ind., likes growth he gets on peach trees in grass-legume



Contour planting conserves moisture by preventing run-off on seven acre peach orchard at the Downing Fruit Farm, New Madison, Ohio.



A combination of sod cover in middles and soybean cover next to trees at Byrd Orchard, Winchester, Va.



sod cover. Cutticutter chops up heavy growth. Improved soil structure results.

Heavy application of straw mulch helps carry trees through short dry periods at the J. B. Lane Orchard, Xenia, Ohio.

Hardpan near surface prevents drainage and deep root penetration. Trees suffer in weather which is either dry or wet.

silt hold more water and frequently permit only shallow rooting. Between the two extremes is the happy medium which is optimum for both root penetration and water-holding capacity.

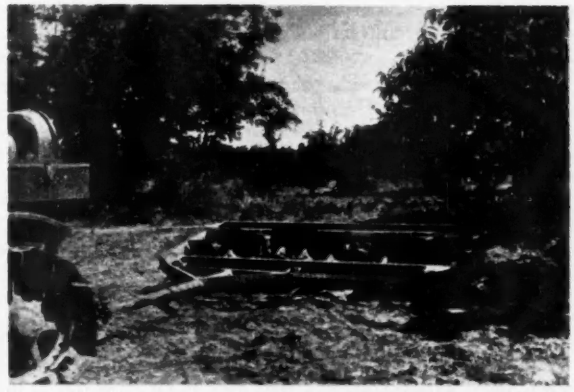
Organic matter works two-fold. It holds water like a sponge and helps aggregate or bind clay soils into clumps. Then the spaces around these clumps can be filled with water which is available to roots. On the other hand much of the water surrounding the minute clay particles is not available to the roots.

Thus we see that character of soil profile determines its natural water-holding capacity and extent of tree root growth. Can we, by means of cultural practices, increase the size of the water reservoir? Most soils specialists are of the opinion that we are limited in what we can do about it. Effects of organic matter, as mentioned, are the most notable.

If we cannot appreciably increase

(*Continued on next page*)

Cherries on Sodus Fruit Farm, Sodus, N. Y., make excellent growth and yields under cover of shallow-rooted Ladino clover.



The cutticutter keeps sod or cover growth down and helps to make the surface of the soil more permeable to rainfall.

Cultivation during a dry period to destroy weed or cover crop growth helps conserve soil moisture for tree roots.

CONSERVING WATER In the Orchard

(*Continued from preceding page*)

the water-holding capacity of an orchard soil, what recourse do we have to conserve soil moisture? We can preserve as much of the rainfall as possible through halting runoff and evaporation from the soil surface and through drainage control. And while preserving water we also conserve soil.

We know that much rainfall during the growing months is of such intensity that most of it runs off the surface of the soil unless precautions are taken to conserve it. Degree slope, condition of the soil surface, and porosity or openness of the top foot or so of soil determine how fast water can enter.

Terracing and contour planting of orchards are no longer novel ideas but real water and soil conserving practices. Terraces check the rush of water down the slope and hold it until most or all of it soaks into the soil. Terracing should be considered essential on slopes of 12 per cent or more, especially if any cultivation is to be practiced.

The Role of Cover Crops

The type of sod cover has a bearing on the amount of water loss. Plants such as alfalfa and sweet clover, which root deeply, compete with tree roots for soil moisture. This may become very great during prolonged drought periods.

Shallow-rooted crops such as bluegrass draw their moisture from the upper root zone and offer considerably less competition to tree roots. Grass covers offer other compensating effects, too. During drought periods the grass goes into a state of semi-dormancy, uses very little water, and shades and cools the soil surface, thus appreciably reducing the rate of water evaporation from the soil. It also creates a surface condition favorable for rapid infiltration of rainfall.

Research in West Virginia has revealed that cultivation materially reduces the organic matter content of orchard soils. From the previous discussion we can understand why a deficiency of organic matter lowers the percentage of large-sized aggregates and consequently the air and water-holding space in the soil. The net result of decreased organic content of the surface soil is an increase in volume weight coincident with loss of pore space and reduced root zone.

Mulching

The value of mulching to conserve water remains debatable. Evidence so far indicates that effectiveness of mulch depends upon the amount of material applied, amount of total rainfall during the growing period, extent of drought periods, and the nature of the soil profile.

Results of work at Cornell University by Dr. Damon Boynton and associates shed some light on the subject. These scientists mulched trees for 10 years with strawy manure at the rate of one-half ton per tree for the first five years and one ton per tree for the next five years. Approximately a three per cent increase resulted in the moisture holding capacity of the soil. In terms of gallons of water, this means an increase of about 125 gallons per tree in the top six inches of soil.

Is this amount significant? During a dry, hot period a tree would use up this amount in a day. So from a water-conserving standpoint the value of mulch seems doubtful, especially on deep soils.

In Ohio, studies made on Wooster silt loam have revealed that a straw mulch greatly increases the degree of soil aggregation in the top soil. When fresh unleached straw or alfalfa hay is used benefits are realized more quickly and to a greater degree than when old weathered material is used.

Sucrose (sugar) is known to increase aggregation and the Ohio workers believe this increase may be due to leaching of sucrose into the soil from fresh material.

Varietal Response

For 30 years a section of orchard at the Ohio Agricultural Experiment Station has been carried under the cover crop system. Rye was sown in the fall for winter cover and soybeans in the spring for summer cover. Each crop was disced in previous to seeding the next crop. Delicious and Stayman apple trees were grown on these plots.

The results are interesting. Stayman trees produced, during the last 10 years of the test, an average of 499 bushels per acre under cover crops and 407 bushels under mulch. This was an average of 93 bushels more per acre under cover crops than under mulch. Delicious, on the other hand, produced 86 bushels more per acre under mulch than under cover crops. So maybe there are varietal differences in response to cultural treatments.

Fruits of both varieties were larger under mulch than under cover crops while color was a little higher under cover crops than under mulch. In the case of Stayman, the increased size of fruits grown under mulch did not compensate for the lower yield.

Costs of growing were not significantly different. Under mulch the per bushel cost was 58 cents; under cover crops 56 cents. Value of the fruit crops at the end of the period also were not significantly different. Under cover crops the yearly production per tree averaged $12.69. Mulched trees averaged $12.27 worth of fruit a year.

Shallow Soil Tests

The USDA recently conducted a test of cultural practices on a shallow soil in which root penetration was limited to about two feet. Under ordinary conditions this soil holds enough water to last 20 to 25 days. If it doesn't rain during that time trees wilt severely and crops are greatly reduced.

Mulching was compared to cultivation on 22-year-old Rome Beauty and Oldenburg apple trees. The trees produced slightly better under mulch than under cultivation.

Summary

What we have learned about soil management practices in the orchard and their effect on conserving water for tree growth can be summed up as follows:

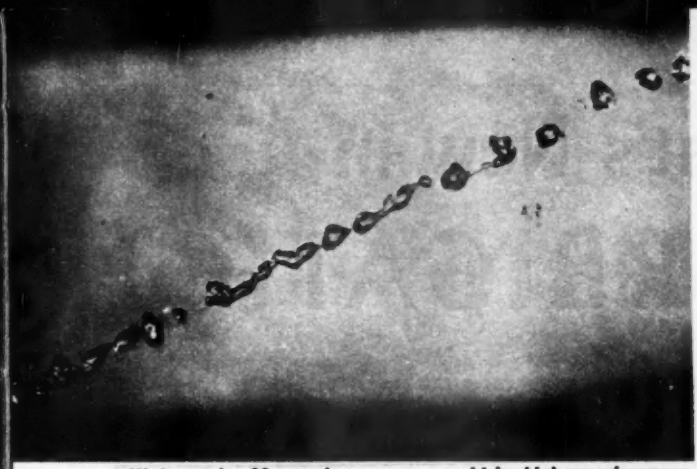
1) If possible select an orchard soil in which roots can grow to a depth of four feet or more. The deeper the rooting area the bigger the water-holding reservoir. This is the best assurance that trees can hold out during long drought periods.

2) Maintain soil surface in a condition to absorb rainfall rapidly. Sod covers and mulched surfaces do this. Use of such tools as the culticutter on sods helps increase rate of infiltration and checks cover growth.

3) Select cover crops which do not root deeply. Sometimes discing to destroy such crops at the beginning of a dry period will conserve water for tree roots.

4) Mulching trees on shallow soils has advantages during short dry periods. Mulch should be applied in large quantities at least 10 to 12 inches deep.

5) On steep land, terracing and planting trees on the contour will permit more rainfall to soak into the soil. THE END



Water under 20 pounds pressure caught by high speed camera after leaving sprinkler nozzle. Note large, solid-looking drops.

In photo above water has been ejected from sprinkler at 60 lbs. pressure. Drops are smaller and the stream is breaking up.

SPRINKLER EFFECT
On Soil Structure

Pressure used and drop size seriously affect infiltration capacity of soil

By GILBERT LEVINE
Cornell University

WITH the growing season under way many fruit growers are thinking of buying sprinkler irrigation equipment. The costs involved are generally considerable and the wise grower wants to get the most out of his investment. With this in mind, and realizing that each farm presents special problems, it pays to buy a system that is individually designed.

Much research is being carried on to provide a sound basis for irrigation design. Recent work at Cornell has dealt with some aspects of this problem. In the design of an irrigation system the sprinkler nozzle size and the operating pressure must be chosen. The same amount of water can be obtained from a sprinkler with larger nozzles operated at a certain pressure as from smaller nozzles operated at a higher pressure.

Which is best? Since it takes less power to pump a desired amount of water at a lower pressure than at a higher pressure, it would seem that the large nozzle-low pressure combination is the more desirable.

This is not always true, however. Where small fruits are cultivated excessive splashing of the soil often results from the large drops produced with sprinklers operated at low pressures and with large nozzles. This splash frequently has undesirable consequences. The Cornell work covered many phases of the whole problem and, although these experiments have not been completed, tentative results have been obtained.

The Cornell research began with extensive laboratory studies of the sprinkler nozzles. These included high speed photographs of the jet and determinations of the size of drops produced under various operating conditions. The experiments showed that pressure has a marked effect on the size of drops produced. A tentative relationship showing the effect of pressure and nozzle size on drops was established. This type of information could be used in selecting operating conditions to give desired drop sizes.

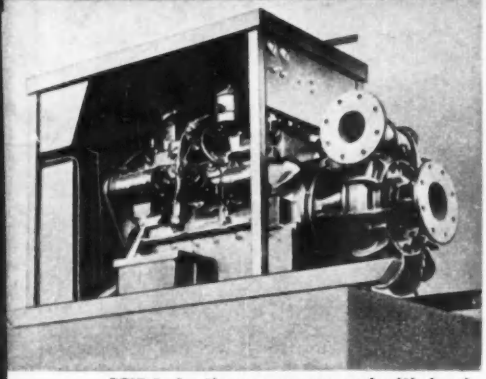
A second phase of the New York experiments dealt with the effect of drops hitting the soil. Three different soils, one light, one medium, and one heavy textured, were irrigated with

(*Continued on page* 44)

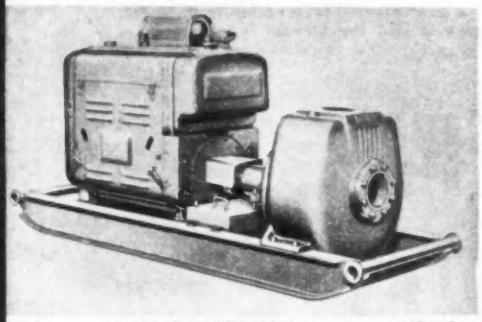
Standing water in this field indicates rate of application greater than infiltration capacity, resulting in run-off and decreased irrigation efficiency.

What's New in IRRIGATION

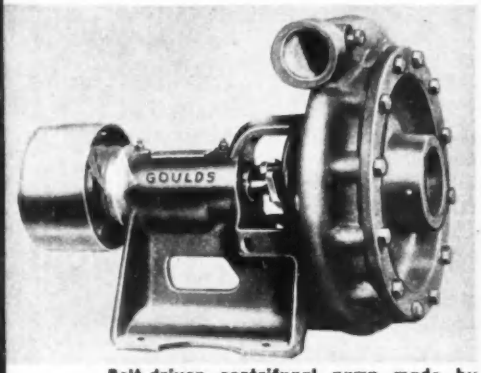
Here are a few of the many new models available in different sizes and capacities to fulfill nearly every orchard requirement



PFIR irrigation pump powered with 6-cylinder Industrial Engine is made by Hale Fire Pump Company, Conshohocken, Pa.



Model SP6x6FG high-pressure self-priming centrifugal pump is made by Barnes Manufacturing Co., Mansfield, Ohio.

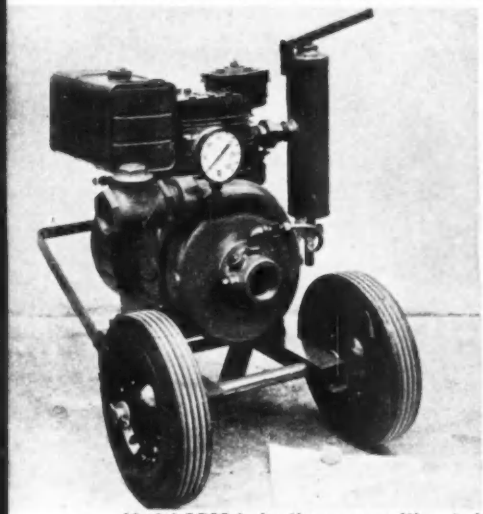


Belt-driven centrifugal pump made by Goulds Pumps, Inc., Seneca Falls, N. Y., gives flexibility for varying conditions.

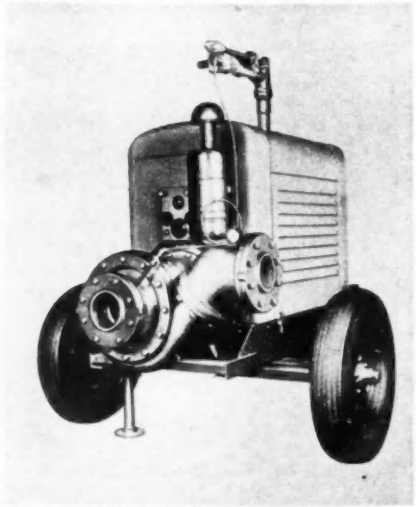
Vertical turbine pump with rated capacity of 350 g.p.m. is manufactured by the Worthington Corporation, Harrison, N.J.

Rainbow Manufacturing & Sales Co., Chattanooga, Tenn., Volume gun covers up to 3 and one-half acres at one setting.

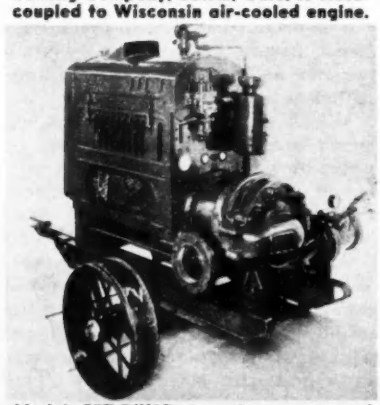
Side suction centrifugal pump of The Deming Company, Salem, Ohio, is close-coupled to Wisconsin air-cooled engine.



Model 2C8S irrigation pump with rated capacity of 116 g.p.m. is manufactured by Marlow Pumps of Ridgewood, N. J.



Model 5 WHI irrigation pump with rated capacity of 950 g.p.m. at 90 lbs., made by Carver Pump Co., of Muscatine, Iowa.



Model 55T-DIX6D two-stage pump of The Gorman-Rupp Co., Mansfield, Ohio, is powered by a Hercules diesel engine.

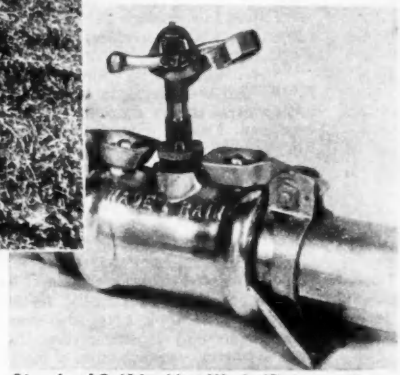
EQUIPMENT?

Left—Dolly assembly for Wheel-Trac sprinkler irrigation system, made by Farmland Irrigation Company of Fresno, Calif.

A Wheel-Move lateral line shown sprinkling in alfalfa, is manufactured by Farmland Irrigation Company, Fresno, Calif.

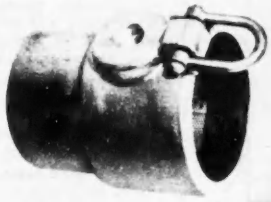
Model No. 20A sprinkler head with capacity of 1.1 to 9.4 g.p.m., is manufactured by National Rainbird Sales, Azusa, Calif.

Buckner two-nozzle dual action sprinkler is manufactured by the Buckner Manufacturing Company, Inc., Fresno 8, Calif.

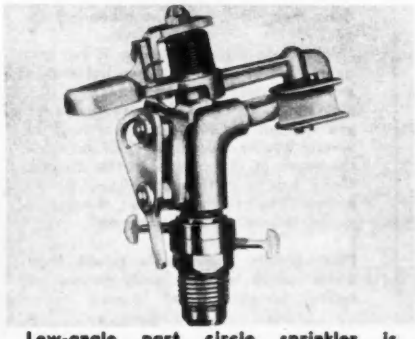


Standard Self-locking Wade 'Rain coupler, made by R. M. Wade & Co., Portland 9, Ore., is adaptable to all types of pipe.

O.K. Champion aluminum irrigation pipe coupling assembly is manufactured by Champion Corporation, Hammond, Ind.

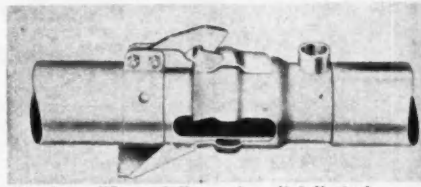


Racebilt "Linklok" coupler, which is manufactured by Race and Race, Inc., Winter Haven, Fla., insures tight fitting.

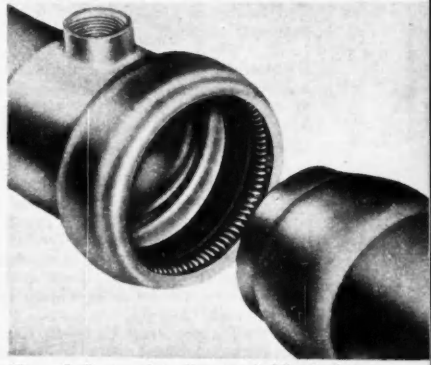


Low-angle part circle sprinkler is made by The Skinner Irrigation Company, Troy, Ohio, rotates from 20° to 340°.

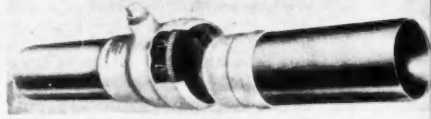
Coupler No. CLP-303, made by Rainway Irrigation Co., Spokane, Wash., can be used for main line or lateral line.



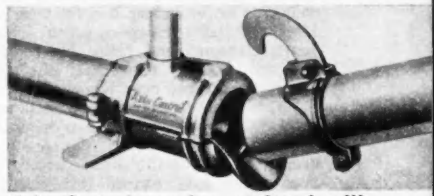
Steelume "Press-In" coupler, distributed by Western Irrigation & Equipment Co., Eugene, Ore., assures positive fit.



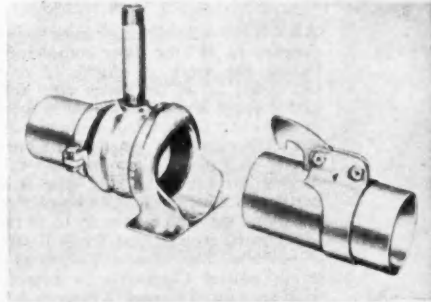
New Ball coupler for portable irrigation pipe connections is made by W. R. Ames Company, San Francisco 7, Calif.



McDowell coupling with automatic gasket-coil, pressure-lock design, made by McDowell Mfg. Co., Pittsburgh 9, Pa.



Rain Control coupler, equipped with positive lock, is made by Hardie Manufacturing Co., Los Angeles 58, Calif.



Shur-Rane self-locking latch, made by Food Machinery and Chemical Corp., San Jose, Calif., speeds up coupling of lines.

State NEWS

- **Jack Frost Does Extensive Thinning Job in Scattered Areas**
- **Apple Scab Causing Concern in Midwest and East**

The USDA on May 1 forecast the 1953 peach crop in the 10 southern states at 12,110,000 bushels—14 per cent above the 1952 crop but 10 per cent below the 1951 crop and 13 per cent below average. The total 1952-53 citrus crop was estimated by the USDA at 120.7 million boxes of oranges (2 per cent above last season) and 38 million boxes of grapefruit (6 per cent less than last season).

GEORGIA—Heavy frost on April 21 did a good thinning job for most peach growers at no expense. Total crop estimate as of May 12: 3,220,000 bushels; commercial crop: around 4,200 cars.

The Cardinal variety is expected to be ready to ship on May 24; Dixired on May 27. Indications are that Elberta will be shipping ripe about July 5. Present season is about three days ahead of average. There is very little bacteriosis, with no suggestion of a general infection. Two more large hydrocoolers will be in operation this season in south Georgia.

Overall apple crop in north Georgia is light because of late spring frosts.—*Earl F. Savage, Experiment.*

KENTUCKY—April freeze took 30 per cent of our commercial strawberry crop. We now estimate one-half of a commercial peach crop. A two-thirds apple crop is in prospect. Very early blooming varieties hurt especially. Red Delicious severely cut.

No blight showing yet. Blossom blight on peaches very common.—*W. W. Magill, Sec'y, Lexington.*

TENNESSEE—We have had a peculiar bloom season. One oldtimer near Nashville said that never before had he seen peaches bloom 10 days before cherries. This year peach blossoms had fallen before cherries bloomed. Dr. B. S. Pickett observed the same at his home near Knoxville.

Except for strawberries, which suffered a 30 to 35 per cent crop loss in the frosts of April 19-20, weather damage to fruit crops has been on the whole very light. The peach crop may exceed last year's good crop if present favorable moisture conditions prevail. The apple set seems surprisingly good despite unfavorable pollinating weather.—*A. N. Pratt, Sec'y, Nashville.*

ARKANSAS—Temperatures which dropped to 24° for three successive nights during the week of April 12 destroyed practically all of the peach crop and most of the apple and grape crops in the northwest section. What few strawberries were left following last year's drought were mostly destroyed. This has been the most serious damage from late freezes in the northwest district in 20 years. Around Nashville we should have 65 to 70 per cent of a normal crop on that area's 10,000 acres of peaches. The Johnson County area centering around Clarksville is expecting 75 to 85 per cent of a crop. In eastern Arkansas on Crawley's Ridge centering around Wynne a bumper crop is expected on the 1,500 acres of peaches in that area.—*Earl J. Allen, Sec'y, Fayetteville.*

FLORIDA—Cool weather in April did very little damage to fruits. Temperatures were not low enough to damage citrus, nor were they low enough to harm other fruit crops to any appreciable extent.—*Clyde Beale, Gainesville.*

MONTANA—Prospects are for a much larger sweet cherry crop than has ever been produced. Last year about 3 million pounds were produced in the Flathead and Lake County areas and we expect at least a million more this year. Apple trees show very good prospects.—*R. O. Young, Sec'y, Missoula.*

IDAHO—It appears that there will be a 50 per cent sweet cherry crop, a 60 per cent peach crop, and practically no apricots. The Delicious apple crop also was somewhat reduced by frosts, as was the prune crop. Growers burned quite a bit of oil.—*Anton S. Horn, Sec'y, Boise.*

COLORADO—Soft fruit situation still unknown following cold wave of May 1-3. Peach production cut from record 2,225,000 bushels in 1952; exact damage won't be known until June drop. Cherries hurt some. Apricots, virtually gone as result of hard freezes when mercury dropped to 22° in parts of Delta County and 26° in parts of Mesa County. Pears also may have suffered.—*L. L. Mariner, Sec'y, Clifton.*

UTAH—The commercial apricot crop has been lost and sweet cherries have been damaged but we will probably pick a commercial crop of peaches, apples, and pears, also strawberries.—*Gene H. Oberly, Sec'y, Logan.*

WASHINGTON—An extremely warm January and February together with the third lowest month of April on record by the Yakima weather bureau created havoc in the Yakima Valley, particularly in the lower area. Growers suffered fruit loss and housewives suffered smudged homes. Ap-

(*Continued on page 20*)

FRUIT PEST HANDBOOK

(TWENTY-FOURTH OF A SERIES)

PEACH TREE BORER

THE peach tree borer, a native insect, attacks peaches, plums, cherries, and other stone fruits and related species in the area from the eastern seaboard to the Rocky Mountains and from Canada to Florida and in some areas farther west. A related species of similar habits occurs in the west.

Injury is due to feeding of the larva, or borer, in the soft bark of the tree at or near the ground level and along the larger roots. Its presence is usually shown by the occurrence of a jelly-like gum mixed with dirt and grass around the trunk at the ground level. Young trees may be completely girdled and killed and older ones so seriously injured as to reduce their vitality and crop-bearing capacity.

With rare exceptions there is but one generation of the peach tree borer each year. The adults, clear winged moths, emerge during the summer and early fall and the females soon lay an average of several hundred eggs, most of them on the trunk of the tree near the ground. Upon hatching, the tiny young borers burrow into the bark, often through a

(Continued on page 43)

Photographs show male peach tree borer moth at top and larvae of borer on trunk of peach tree.

"Black Leaf® 253 replaces several special sprays!"

—says DONALD CAHOON, Wolcott, N. Y.

"We used Black Leaf 253 cover spray on 90 acres of bearing apples last year with outstanding success in the control of apple insects," says Donald D. Cahoon, owner of Cahoon Farms, Wolcott, N. Y. "The thing we liked most about Black Leaf 253 — aside from the excellent results obtained — is the fact that it is a general purpose spray controlling most apple insects and thereby eliminating the need for applying several special sprays."

Forward-looking fruit growers, such as Mr. Cahoon, prefer Black Leaf 253 because this modern, multi-purpose product simplifies summer spraying by replacing other more complicated and more expensive cover spray programs with one highly-effective, low-cost product.

Black Leaf 253 controls codling moth, red-banded leafroller, leafhoppers, European red mite, red spider mite, San Jose scale, Forbes scale, and similar pests.

Black Leaf 253 is Black Leaf *Tobacco Base* "impregnated" with 25% of DDT and 3% of Parathion by an exclusive process.

Dustless. Black Leaf 253 is scientifically treated to eliminate dust. Just dump it in the water as the spray tank is refilling.

Compatible. Mixes with all the fungicides and other materials recommended in combination with DDT and Parathion.

Less residue. Black Leaf 253 provides excellent control with minimum chemical residue and essentially no visible residue.

Buy Black Leaf 253 from the man who sells you your spray materials or write for the name of your nearest supplier. Start now to streamline your summer cover spray program for extra profits!

Black Leaf®
SPRAY MATERIALS

Aramite 25% Emulsifiable Concentrates
Aramite Wettable Powder 15%
Arsenate of Lead
BHC Wettable Powder 10%
DDT Wettable Powder 50%
Dieldrin Wettable Powder 25%
Black Leaf 40 • Black Leaf 155
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Chlordane Wettable Powder 40%
Ferbam Wettable Powder 76%
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The "LEAF" that protects the tree is a "Black Leaf" SPRAY

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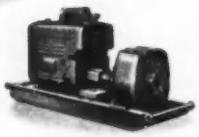

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BARNES Tractor-Mounted Pump for I-H Cubs

1½ and 2-in. sizes. Delivers up to 100 G.P.M. at 80-ft. head.

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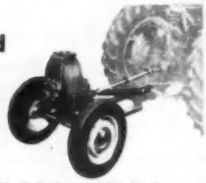

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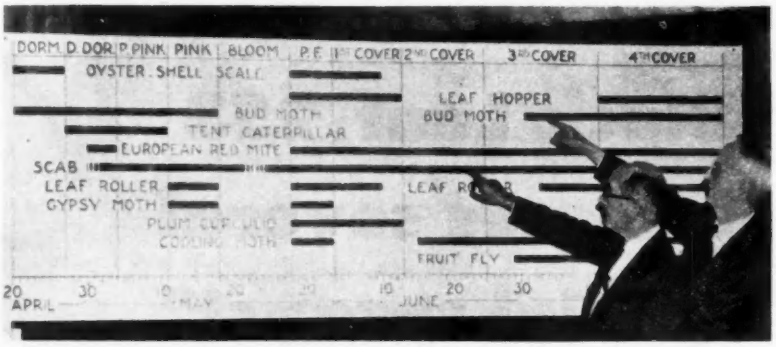

This large spray-dust schedule is used by Drs. Merle T. Hilborn, left, associate plant pathologist, and Frank H. Lathrop, entomologist, of the Maine Agricultural Experiment Station, when speaking at meetings of Maine apple growers. The chart rolls up, and can be easily tacked to the wall.—*Arthur Hawkins.*

STATE NEWS

(*Continued from page* 18)

proximately 5,000 acres were heated during the coldest nights which averaged as low as 21° in some areas. A low dewpoint also was instrumental in causing more damage in orchards which were not heated. Fruit damage, however, was not as heavy as anticipated, according to Bill Luce, Yakima County horticultural agent. He states that apples may produce a 10 to 15 percent gain over a normal crop.—*Jack Whitnall.*

CALIFORNIA—The big Thompson Seedless grape crop may be pruned back 15 per cent in the Fresno district because of severe frosts in April but total state volume should still be substantial. Napa and Sonoma valleys in northern California, where varietal wine grapes predominate, were hit hard and losses may run 50 per cent.

Apples, cherries, and pears were too late to be frosted. Almonds and walnuts will still make an average size crop. Damage to apricots, peaches, and plums cannot be accurately ascertained but there are still signs of a pretty good crop. Figs seem to have suffered quite a reduction. It is not expected that the citrus volume will be greatly reduced by the frost.

California is going heavy on the strawberry crop this year with an unusually large acreage of 9,400 acres planted compared to 8,400 last year.

MARYLAND—Mid-April freezes were bad in some of the lowlying peach blocks; however, peach plantings in western Maryland came through with injury varying from none to possibly 40 per cent. There was not much injury in other parts of the state. Apples seem to be injured possibly 10 to 15 per cent. In general all fruits are well sprayed in spite of almost constant rains.—*A. F. Vierheller, Sec'y, College Park.*

VIRGINIA—A good crop of peaches and an average crop of apples seem to be in prospect. Cold temperatures were inconsequential except on Red Delicious apples, which variety may have been damaged one-fourth to one-half.—*A. F. Watson, Sec'y, Staunton.*

WEST VIRGINIA—Apples were cut only by an estimated 10 per cent by April freezes. Delicious were hurt worst. The blossom was not a heavy one. Peaches were hurt more; perhaps 25 per cent crop reduction.—*Carroll R. Miller, Sec'y, Martinsburg.*

OHIO—Frost damage to peaches has been severe in southern Ohio. Temperatures of 20° or lower in several central and southern areas destroyed a high percentage of peach bloom. Northern half of the state escaped serious damage. Prospects in early May seemed to justify the expectation of a total production of both peaches and apples exceeding that of last year.

Dr. Freeman S. Howlett, chairman, Ohio department of horticulture, is planning a two-months' trip through fruit sections of the West in late May or early June.

H. L. Kirker, fruit grower of Catlettsburg, Ky., died April 2. Mr. Kirker was an engineer by profession but he had developed a large commercial orchard in the Ohio River Valley.—*C. W. Ellenwood, Sec'y, Wooster.*

INDIANA—Some apple and peach injury has occurred in the southern area, (May 12) mostly to low frosty pockets. Central and northern areas have had no damage. Scab now showing up as far north as Lafayette. Crop prospects look very good.—*Ray Klackle, Sec'y, West Lafayette.*

ILLINOIS—Some local area frost damage has occurred (May 11) but authorities anticipate no great decrease in commercial peach crop. In apples we have had some local crop kill but the major part of the crop was not damaged. We anticipate a good volume of both apples and peaches.—*Harold J. Hartley, Sec'y, Carbondale.*

MICHIGAN—Prospects for a good fruit crop are very favorable (May 12). Some cold injury occurred on sweet cherries in southwestern and central western areas and a slight amount on sour cherries in the southwestern section. Other fruit crops are free from cold injury thus far.

Prolonged periods of rain in late April and early May have been favorable for scab infection on apples. Growers have been making good use of liquid lime-sulfur, mercurial compounds, and Phygon to eradicate possible infection.—*A. E. Mitchell, East Lansing.*

MINNESOTA—Season is 10 days later than normal. No frost damage. Conditions have been very favorable for all fruits with the least winter injury experienced for years.—*J. D. Winter, Sec'y, Mound.*

IOWA—Cold weather prevailed throughout the state during April which held back fruit buds, thus delaying sprays from a week to 10 days. Growers are optimistic

(*Continued on page* 22)

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For example, here are the recommended spray materials for use on Apples.

For Scab:
- **Ferbam Spray Powder** (organic fungicide containing 76% ferric dimethyl dithiocarbamate)
- **Micro Dritomic Sulfur** (wettable sulfur)
- **Puratized Apple Spray and Puratized Agricultural Spray** (organic mercury fungicides)

For Mites:
- **Genite 883 Spray Powder** (p-chlorophenyl p-chlorobenzene 50%)
- **Genithion P-15 Spray Powder** (contains 15% Parathion)
- **15% Aramite Spray Powder**
- **Aramite EM-2 Emulsifiable Concentrate**

For Curculio:
- **50% Methoxychlor Spray Powder**
- **Dieldrin EM 1½ Emulsifiable Concentrate** (up to first cover only)
- **50% Dieldrin Spray Powder** (up to first cover only)
- **Genithion P-15 Spray Powder**
- **Lead Arsenate, Standard and Astringent**

For Codling Moth:
- **Genitox S-50 and S-75 Spray Powders** (contain 50% and 75% DDT)
- **Lead Arsenate, Standard and Astringent**
- **Genithion P-15 Spray Powder**

For Red-banded Leaf Roller:
- **50% DDD (TDE) Spray Powder**
- **Lead Arsenate, Standard and Astringent**
- **Genithion P-15 Spray Powder**

For Aphids:
- **Nicotine Sulfate Solution**
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Orchard Brand Products for fruit growers include:

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STATE NEWS

(*Continued from page 20*)

about the fruit condition. Very little damage to fruit buds due to the freeze.

Bob Clark of Apple Grove Orchards, Mitchellville, reports that because of the anticipated heavy apple bloom he planned to use growth regulators on all their medium aged trees. In solid stands of more mature trees he has found that growth regulators should not be used until 2 to 2½ or 3 weeks following full bloom. He then uses 15 p.p.m. instead of 10 p.p.m. This gives time to appraise the prospective amount of fruit set and to find blossom blight thinning that does not always show until well after bloom.

For blossom blight thinning this year Clark planned to use Dithane Z-78, 2 pounds per 100 gallons along with 2 ounces of Tritone B-1956 spreader.—*R. G. Raines, Sec'y, Des Moines.*

MISSOURI—The cold wave and series of freezes April 16-19 were very damaging to all fruits in the Ozark plateau area including all of Missouri south of the Missouri River except the Mississippi River hills in the extreme southeast. Total apple damage Ozark area 80 per cent at least, peaches 100 per cent, pears and plums 100 per cent, grapes 75 per cent, and strawberries 60 per cent.

Mid-state areas escaped serious damage except to peaches and Delicious apples, which were seriously injured. Practically no damage in extreme northern areas or along the east side of state bordering Mississippi River.

Total apple crop probably reduced to 60 per cent, peaches 60 per cent, grapes 25 per cent, strawberries 40 per cent of the prospects before the freeze.—*W. R. Martin, Jr., Sec'y, Columbia.*

NORTH DAKOTA—No frost injury to trees nor low temperature injury to fruit buds has been reported. F^2 apricots (Moorpark x Siberian) are about to burst their buds (May 7) and they are about as tender in the bud as anything we grow. Severe injury to raspberry canes has been reported. —*Harry A. Graves, Sec'y, Fargo.*

SOUTH DAKOTA—After the mildest winter on record we had a cold March and April which has held back the blossoming period of apples and apricots. Most growers are hopeful of a good crop after the short crop of last season.—*W. A. Simmons, Sec'y, Sioux Falls.*

NEBRASKA—Frost damage was limited to apricots in some sections where they happened to be in full bloom. All varieties of apples except Duchess and Wealthy which bore heavily last year will need to be thinned.—*Wayne C. Whitney, Sec'y, Lincoln.*

KANSAS—The extent of the damage from one of the most unfavorable Aprils we have ever had is still difficult to estimate. The peach crop in the main producing area from Wichita eastward along the southern areas of the state seems to have been badly damaged and in most places is out. In the extreme eastern area the four Missouri River counties of Wyandotte, Leavenworth, Atchison, and Doniphan seem to have come through with all fruit crops unharmed. The snowball apple bloom is setting heavily and thinning operations are underway with many growers using the new growth regulator Amide.

Out in the state the apple crop fared much worse.—*H. L. Drake, Sec'y, Bethel.*

MAINE—There is no evidence to indicate that fruit set has been affected by freezing weather. Some winterkilling of trees occurred last winter.—*F. J. McDonald, Sec'y, Monmouth.*

W. H. Alderman, shown here inspecting apple trees used in breeding work, is retiring on July 1, 1953, as head of Minnesota's department of horticulture. Prof. Alderman has also supervised the University of Minnesota Fruit Breeding Farm at Excelsior. Among the 124 new fruits, vegetables, and flowers developed especially for Minnesota climate and soil are the widely grown Latham red raspberry, the Haralson apple, and the Red Lake currant.

VERMONT—McIntosh fruit buds are just approaching the pink stage in southern counties (May 8). A heavy bloom on McIntosh, Greening, and Northern Spy apple varieties is expected with Delicious and Cortland spotted to light compared to 1952 production.—*C. Lyman Calahan, Sec'y, Burlington.*

MASSACHUSETTS—No damaging frost to date (May 12). Our big problem this spring is too much rain—better than twice normal rainfall so far. Many scab infection periods. Heavy bloom coming up but a trifle late.

Prof. O. G. Anderson, 64, department of pomology, University of Massachusetts, died April 26 following a long illness. He was graduated from Massachusetts Agricultural College in 1913, taught pomology at Purdue University 1914-31, was with Tobacco By-Products & Chemical Corp. 1932-48 and University of Massachusetts 1948-53.—*A. P. French, Sec'y, Amherst.*

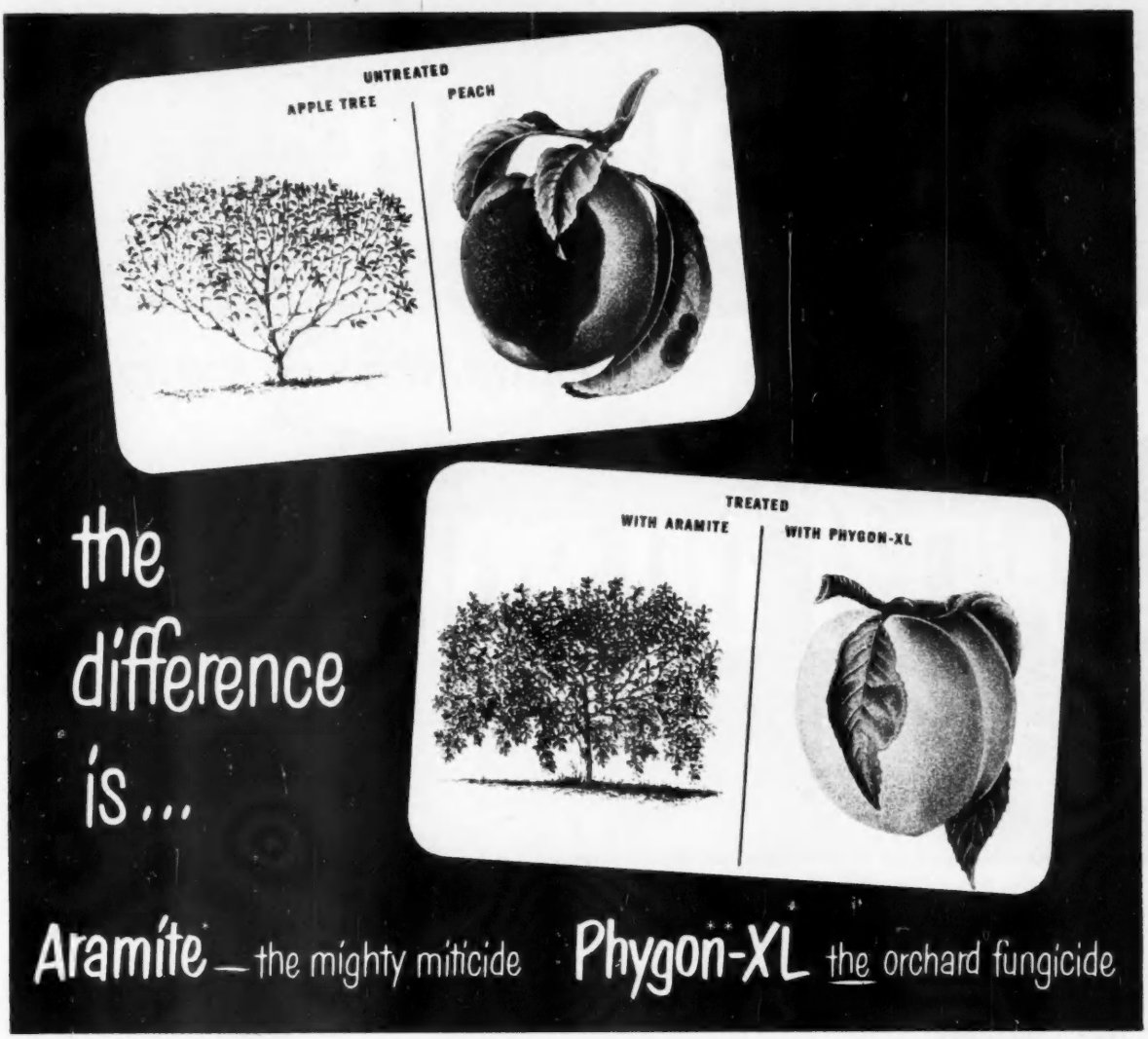
RHODE ISLAND—With the ideal weather we are having it looks like a good McIntosh year. Baldwins and Delicious will be light. Peach bloom was excellent. —*George H. Smith, Sec'y, Slatersville.*

CONNECTICUT—Weather rainy 75 per cent of the time. Growers having trouble getting their spraying done. Fruit bloom prospect is heavy.

Carl W. Clark, 70-year-old fruit grower of Woodbridge, was killed recently in a tractor accident.—*S. P. Hollister, Sec'y, Storrs.*

NEW YORK—Frost damage on May 4 was not important since buds were not far enough advanced. However, the season is five days early which usually means trouble. McIntosh are fully budded in most apple orchards in western New York, light in some in Hudson Valley, heavy in Champlain Valley. Greening full in Western New York, Baldwin spotty, Cortland spotty, Wealthy light. Total crop (from bud) could be about half way between the '51 and '52 crops. Bud on sour cherries is heavy following light 1952 crop.—*D. M. Dalrymple, Sec'y, Lockport.*

NEW JERSEY—A normal peach crop of 1,250,000 to 1,500,000 bushels and at least an average apple crop of 2,500,000 bushels is indicated.—*A. J. Farley, Sec'y, New Brunswick.*



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FROM CALIFORNIA— Aramite is very effective against Pacific mite on peaches and grapes.

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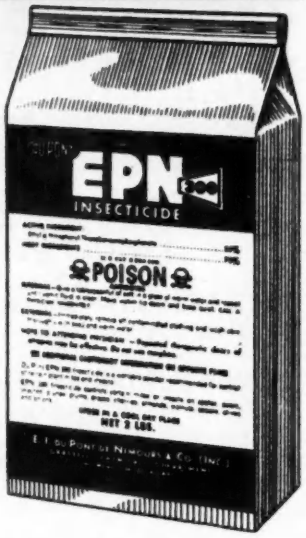
KILLS THESE INSECTS: Oriental fruit moth, plum curculio, peach tree borer, lesser peach tree borer, pear psylla, fruit tree leafroller, grape berry moth, codling moth, orange tortrix and other orange worms, walnut aphid, bud moth, pecan nut casebearer, certain scale insect crawlers.

USE EPN ON THESE FRUIT CROPS: Apples (except McIntosh-type varieties), pears, peaches, apricots, plums and prunes, grapes, cherries, walnuts, almonds, pecans, citrus and olives.



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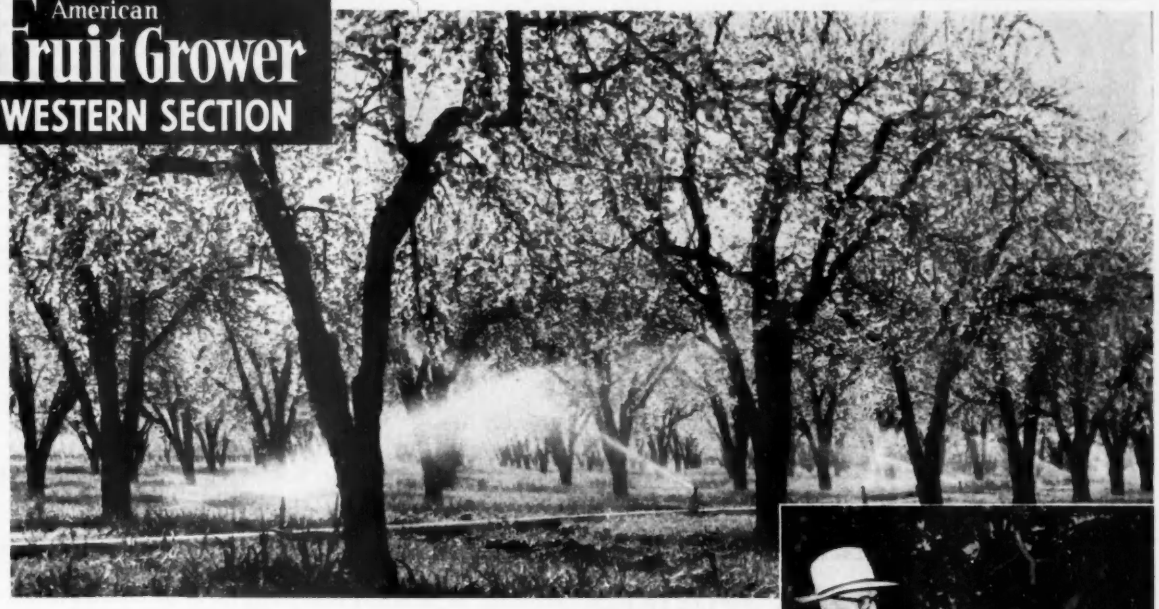

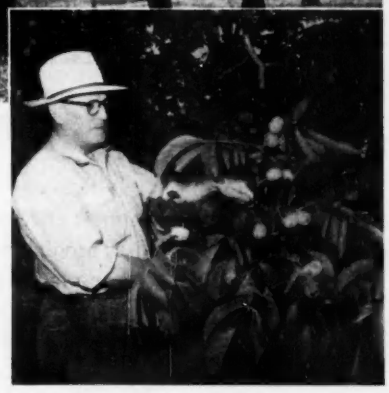

Tom Miller proudly displays branch showing healthy growth and heavy yield.

Californian Uses Sprinklers—

Doubles Walnut Yields

Tom Miller's triple barreled program of nitrogen-sprinklers-tree removal is rewarding him with huge, thrifty, productive trees

IT IS not often that you get a chance to record the life history of an orchard, or grove in this case, as it happens to be walnuts. A reporter's dream is a farmer like Tom Miller of Lakeport, Lake County, California.

Actually, it was Mrs. Miller who turned out to be the grove historian. The really interesting feature of the records was the tremendous change brought about in this grove by changing the system of irrigation. There is also a second story in the change made in the amount of fertilizer used per tree. And finally, the rather startling results of removing some of the trees to provide more space per tree.

Lake County is a famous pear growing district in California. Most of the soil of the county is a red volcanic ash laid down when a huge volcano blew its lid. Walnuts are very happy in this soil.

Tom Miller has two orchards. One is planted on gently rolling hills. The soil on top of the hills averages only about six feet deep. In 1914 he planted 85 Mayette walnut trees and 305 Franquette variety.

Miller put half a stick of dynamite in the hole he dug for each tree, and he says now that he wishes he had shot a whole stick to break up the hardpan.

His production records start in 1924 and run as follows for the 14½ acres of hill orchard.

1924	½	tons	of walnuts
1927	1½	"	"
1929	2½	"	"
1930	3	"	"
1931	3	"	"
1932	1½	"	"
1933	4	"	"

In 1933 he started two new practices. He began to irrigate by running a stream of water down furrows in the tree rows and he started adding 60 pounds of actual nitrogen per acre in the form of ammonium sulphate.

The rainfall in this area is only about 26 inches a year, so he applied another 16 inches of water in the form of four irrigations including a fall irrigation. His results were as follows:

1935	4	tons	of walnuts
1936	5	"	"
1937	4	"	"
1938	6	"	"
1939	5	"	"

From 1940 to 1945 he upped the nitrogen to 80 pounds to the acre with the following results:

1940	7	tons	of walnuts
1941	8	"	"
1942	7	"	"
1943	8	"	"
1944	6	"	"
1945	8	"	"

About 1945 he upped the nitrogen to 90 pounds per acre and started raising a cover crop of vetch and mustard which he turned under, then cultivated the minimum which would keep down the fire hazard of weeds under the trees. His yield record:

1946	7	tons	from 14½	acres
1947	8	"	"	"
1948	8	"	"	"

In 1948 he installed a low-angle sprinkler irrigation system and shifted the aluminum pipes around the trees to give them all a drink. With the advent of the sprinkler system he says the trees started to look better. The washing action of the sprinkler on the skirts of the trees seemed to reduce the pest problem also.

By 1948 his trees which were planted on 40-foot squares had obtained good height for hill land and he

(*Continued on page* 24-B)

Farmland PORTABLE SPRINKLER IRRIGATION

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started the systematic removal of every other diagonal row of trees to give those left more room. A gradual start towards this is made by the heavy pruning of the "temporary" trees in the diagonal rows. To continue the yield figures:

1949 10 tons of nuts from 14½ acres

Then, in 1950, he shot the actual nitrogen up to 147 pounds per acre and his yield was 16 tons.

In 1951 he pruned heavily into the "temporary" trees on the diagonal rows and the yield was 15 tons.

In 1952 he tried 160 pounds of actual nitrogen per acre and he estimated the crop at 18 tons.

And this is just half the story.

On the bottom of the valley in some excellent soil he has his second grove covering 15 acres. These trees are huge. Even though they are planted on 50 foot squares they are crowding each other. One of the biggest stories of this grove is the fact that he removed 155 trees from the original 345 and got more production on the remaining 190 trees than from the original 345.

These Franquettes were planted in 1914. We follow the production:

1924 566 pounds from 15 acres
1927 3 tons
1929 5 "
1930 9¼ "
1931 9 "

In 1933 he started to furrow irrigate his trees and that year his production read 21½ tons. The year 1933 must have been an exceptional one for growing. In 1935 he started using 80 pounds of nitrogen per acre His yields were:

1935 9 tons
1936 19 "
1937 12 "
1938 21 "
1939 16 "
1940 20 "

Next he increased the nitrogen to 100 pounds and yield went to

1941 24 tons
1942 14 "
1943 23 "

In 1945 he started a tree removal program, taking out every other diagonal. This proved a tremendous stimulus to the trees that were up 80 feet in the air by this time.

1946 26 tons
1947 26 "

Another big change came in 1948 when he changed to sprinkler irrigation in this grove. The results:

1948 32 tons
1949 28 "

In 1951 he got 23½ tons with the use of 150 pounds of nitrogen. In 1952 he applied 236 pounds of actual nitrogen per acre and he estimated the crop at 28 tons an acre. THE END

SUMMER WEATHER OUTLOOK for the *Pacific Coast*

Generally favorable conditions will prevail but irrigation demands in the south may be greater than usual during July and August

By IRVING P. KRICK
Meteorological Consultant

WITH the passing of the winter and early spring months, the fruit or nut grower in our western coastal states shifts his weather-eye from frosts, snow, and violent storms to the weather extremes of hail, burning heat, and fruit-splitting showers of the summer months. Temperature, rain, wind, and humidity, all will play an important role in the development of the multitude of fruit and nut crops.

In June of last year, continued cool weather slowed and retarded growth, July saw locally severe cherry and berry damage occur along with considerable mildewing in vineyards, and August brought generally favorable weather for the various harvest activities. With the importance of the weather firmly established, then, let us examine the current outlook for the summer months of 1953.

June Outlook

June temperatures are expected to average from near normal to above normal in Washington, Oregon, and California. Precipitation amounts are likely to be near the long-time June average in California and the western portions of Oregon and Washington. In the eastern portions of the two northernmost states, rainfall totals are likely to be slightly greater than usual. Thus, it appears that some splitting of cherries in the Northwest may be anticipated with the greatest probability of damage currently indicated for the first half of the month.

Strawberry picking activities may be troubled by periodic interruptions during the first week or two, but operations are likely to be in full swing by mid-month.

In the lower San Joaquin Valley of California, the influence of warm, moist air is expected to contribute to the formation of mildew on grapevines, necessitating some resulphuring of vineyards. Nevertheless, the warm weather in prospect should favor the stimulation of satisfactory orchard growth. Over in the Imperial Valley, the maturing of cantaloupes may not be too rapid because of anticipated cloudy conditions during the daytime hours.

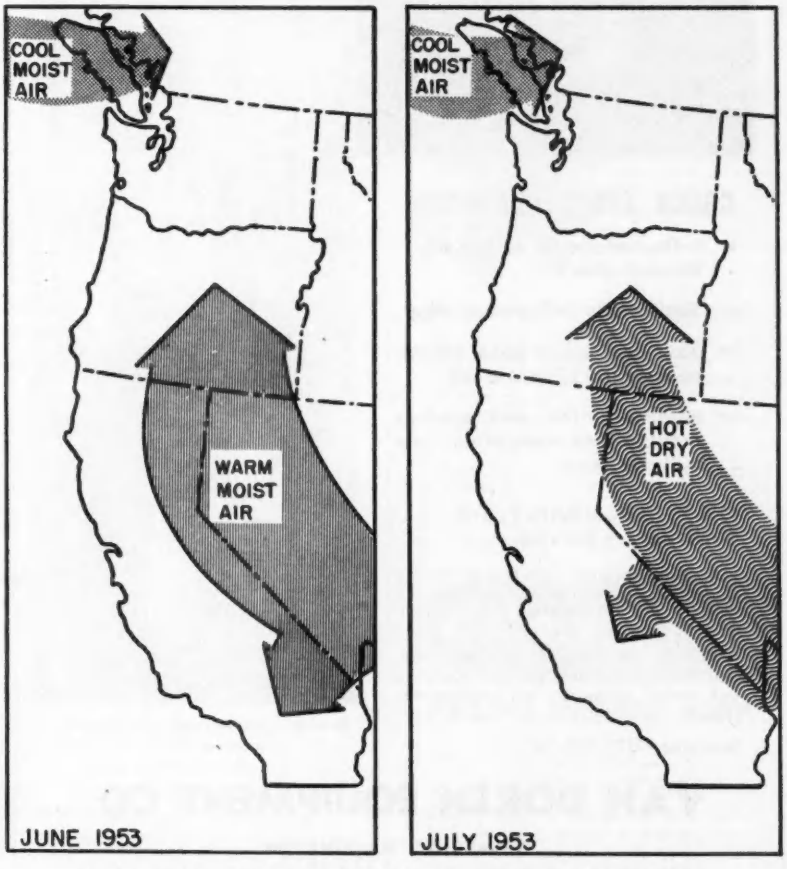
Warm July

In July, Washington, Oregon, and California should experience generally warmer than usual weather. This warm outlook should favor good orchard growth. Early peaches, apricots, and early apples are likely to make good progress during the month with harvest activities in full swing during the intervals of open weather.

The current prospects for less than the usual July rainfall will satisfy cherry and berry interests although scattered local damage should be anticipated as showers and thunderstorms pass over the areas. In the southern California region, summer avocados and Valencia oranges should progress under favorable weather conditions. The warmer than normal average temperatures, however, undoubtedly will limit the number of good working days in the Imperial Valley area.

Variable August

Slightly cooler than normal weather conditions are expected to prevail in Washington and Oregon during August as these two states come under the influence of cool, moist air moving in from the Pacific Ocean. Also of importance in this area is the expected near to slightly above normal rainfall amounts in prospect, particularly in western Oregon and in Wash-



Dominant air currents expected during the months of June and July.

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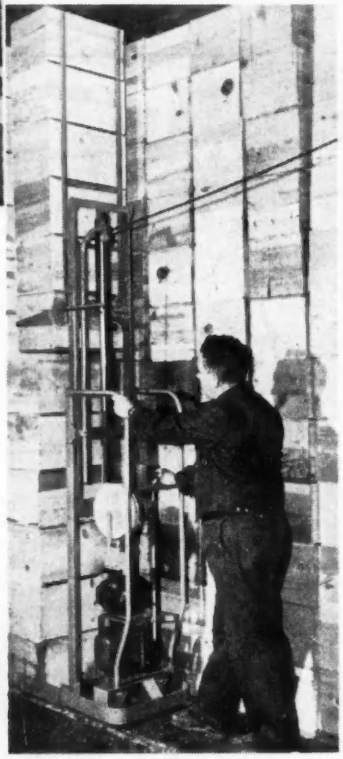

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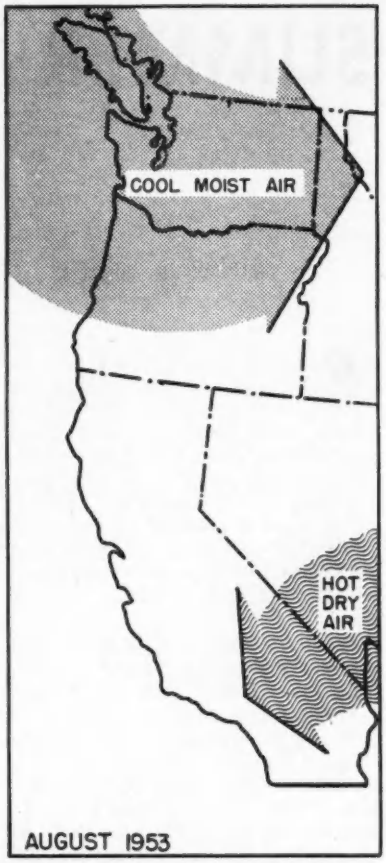

Dominant air currents expected in August.

ington. Commercial peach picking operations may suffer delays due to unsettled weather with some orchard damage occurring from gusty winds during the storm intervals.

With the exception of the extreme northern portions of California where about average rainfall amounts and temperatures are expected, this southwestern state should experience generally warm and dry conditions. This outlook points toward favorable weather for the maturing of fruit and nut crops. In the south, late varieties of deciduous fruits should ripen satisfactorily.

Summary

The prospective summer weather, as currently indicated, points to a generally favorable regime for most of the area. Warm weather and sunshine are expected to be adequate although irrigation demands in the south are likely to be greater than usual during July and August due to the dry conditions expected to prevail. In the Pacific Northwest, warm weather in June and July should advance growth of crops although a somewhat less favorable weather regime is expected to develop and prevail in August. THE END

TAKE CARE OF YOUR SPRINKLERS

Good service means long life and low upkeep for sprinkler heads

By JOHN B. GILL

SLOWLY revolving sprinklers are the basis of the low-cost, portable irrigation systems as we know them today. The performance of this type sprinkler has made the low-cost system possible.

Sprinkler bearings, like any other mechanical bearing, must be free to turn with as little abrasion as possible. The turning of metal against metal, or metal against compositions of various kinds without lubrication except for water seepage can be expected to cause wear and produce difficulties not encountered in more tightly fitted bearings on faster moving pieces of machinery.

Grease lubricated bearings are available on some types of sprinklers, but their added cost discourages their sale, so manufacturers have left them off agricultural sprinklers to keep the price low.

Sand and Silt Problem

Sand and silt are the most encountered enemies of sprinkler bearings. Virtually every well pumps a certain amount of fine sand, especially if the well is new. Water for irrigation systems is often obtained from streams and ponds. Suction lines pick up a certain amount of foreign material—even fish and frogs—and the sprinklers are expected to handle it. If the pump does its share of grinding, sometimes a goodly amount of this foreign material actually goes through the sprinklers if the nozzles are large enough.

It is recognized that perfection of water supply is not only impractical but virtually unobtainable. The more practical approach is to balance sprinkler investment plus repair and replacement costs against the expense of setting up ideal conditions of water supply.

It should also be recognized that during the first year or two of operating a new system, the water source will contribute more foreign matter than in later years when the source may have an opportunity to clean itself of the finer particles of sand and silt. This is especially true of wells.

All this points up to the fact that sprinklers are often expected to operate under conditions for which they normally are not intended. The remarkable thing is that most of them do continue to operate until the bearings wear out completely and the sprinkler spindle, having ground off the thrust shoulder, shoots up into the air usually in the middle of the night and the failure is not discovered until the following day.

Sometimes the accumulation of sand and silt will cause binding of the sprinkler bearing and the sprinkler fails to revolve. Either or both conditions are common to irrigation systems where sand and silt or other foreign matter is not kept out or reduced to the economic minimum.

Clean Water Supply

The maintenance of sprinklers begins back at the water source. The water supply should be as clean as possible—the cleaner, the lower the sprinkler maintenance cost. Suction strainers with low entrance velocity characteristics, kept high from the bottom of ponds or streams, are a must. Settling basins and other devices designed to free the water of suspended matter are important factors in lowering sprinkler maintenance.

Regular inspection of sprinkler driving mechanisms and bearings are necessary to good sprinkler operation. Next to bearings, driving mechanisms take quite a beating and are subject to wear. They should be regularly inspected and repaired or replaced.

Move Pipe Carefully

An important factor in good sprinkler maintenance is in moving sprinklers in the field. Pipe moved in a careless manner so that sprinklers are allowed to drag in the mud is bound to result in high sprinkler repair costs. It has been amply demonstrated that much of the sand that causes bearing wear in sprinklers enters from outside through the top of the spindle.

Sprinklers represent about five to seven per cent of the total cost of an entire system. Relatively, that is an unimportant amount in relation to total cost, but entire operation is dependent on their operation. THE END

The author, JOHN B. GILL, is general manager of Buckner Manufacturing Company, Fresno, Calif., makers of sprinkler heads for irrigation systems.

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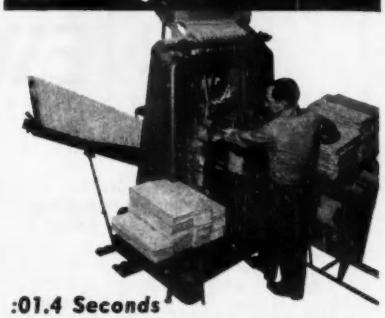
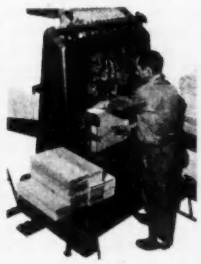


:01.4 Seconds
Machine feeds ends automatically. Operator inserts side which is automatically clamped by machine. Touches foot control and first side driven.

:02.0 Seconds
Operator turns box up to positioning stops, feeds bottom, touches pedal again and bottom is nailed instantly.



:01.5 Seconds
Box is flipped down, last side inserted to stops, nailed at third touch of pedal. Complete box automatically ejects as operator inserts new first side to repeat cycle.

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WESTERN SECTION

Pacific

NEWS AND VIEWS

For Faster Picking

Earl Carlsen's research division of the Washington State Apple Commission comes up with many new ideas which are of great value to growers. Latest is a "picking sleeve" which is designed to make picking more efficient, prevent damage to fruit, and hold a full box. The bag is supported on the picker's back and two plastic sleeves are attached to the worker's arms. The picker twists the stem from the spur and simply drops the fruit into the sleeve. There are several bugs yet to be worked out, but Carlsen is hopeful that the bag will work well enough to be used by growers.

An automatic rotary hoe will cultivate an acre of blueberries an hour under favorable conditions. The automatic hoe is made by the Friday Tractor Co., Hartford, Mich. The new machine can be operated at $3.30 an acre including depreciation but not counting cost of tractor. Hand hoeing costs between $20 to $50 an acre.

Greatest increase in berry weight of Thompson Seedless grapes is obtained with the earliest girdling, reports A. N. Kasimatis, farm advisor for Kern County, California. The increase in size was less with each successive delay in girdling. To obtain maximum size girdling must be done immediately after the normal drop of impotent flowers following bloom.

A Pruning Expert

Frank W. Nelson is an oldtimer in pear circles at Sunnyslope, Wash. The income from nine acres of pears and apples has enabled him to raise and educate four children. In his orchard operations he pays considerable attention to pruning and will spend an hour or more on each tree. One of his secrets with pears is wiring the trees to avoid propping and also to prevent strong winds from whipping the limbs and bruising the fruit.

Members of the Stayton (Oregon) Canning Company Co-operative are putting up $78,000 for more freezing capacity for strawberries and other fruits. A 60 x 184-foot addition valued at $25,000 will house two five-foot freezer belts and will increase capacity by 50 per cent. The second addition, 60 x 240 feet, valued at $53,000, will give additional space for repackaging of frozen products.

Bothered with shy bearing trees? Better check over the new bulletin of the University of California called "Pollination Requirements of Fruits and Nuts." California growers can get copies from their local farm advisor's office.

It's amazing what you have to do these days to stay in the fruit business. Medford pear shippers have purchased two war surplus airplanes and have hired three pilots to fly the planes and seed clouds to prevent hail. What will it be next?

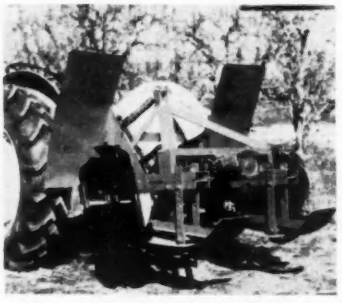
Draining water from an orchard requires a good deal of scientific testing for best results. In a meeting of Soil Conservation Service engineers at Beebe orchards, Manson, Wash., it was pointed out that layers of soil affect drainage, and the pattern of drainage at different levels must be mapped in order to locate intercepting ditches. SCS technicians will help in this work.

Largest Walnut Orchard

R. J. Gotelli, field representative for California Walnut Growers Association, says the largest walnut orchard in the world on Paradox hybrid rootstock is located six miles southwest of Stockton and one mile west of French Camp. Owner M. J. Bevanda of Stockton planted 120 acres with Paradox hybrid because he was impressed with its vigor. In the fall of 1951, 100 acres were budded to Payne, 20 acres to Eureka.

Dams, dams, and more dams to the number of 43, to impound irrigation and livestock water in Solano County, California, are asked of the Soil Conservation Service by farmers. The long six-week rainless stretch in February and March roused growers to action in this important fruit, nut, and livestock area in which Fairfield is the county seat.

HANDY ANDY



Ted McDowell of Gleed, near Yakima, Wash., was not satisfied with the ditchers in general use for orchards so he worked out the tractor attachment shown above. McDowell wanted a type of ditcher that would make a smooth furrow in a grass cover crop; a ditch that would be free enough of trash to carry water to the end tree but still not cause erosion.

The two revolving wheel ditchers turn in the opposite direction to the movement of the tractor. The shoes on the wheel scoop out a smooth ditch at any depth desired. The dirt and trash are scattered and do not fall back into the ditch. Metal guards protect the tractor operation.—W. A. Luce.

Lake Chelan (Washington) fruit growers have good reason to pat themselves on the back. The apples they shipped in 1952 brought the highest prices in the history of the co-op. Average return was $4.09. Year of lowest return was 1923, with $1.01 a box.

Smudging Jack Frost

Washington growers gave Jack Frost a run for his money in April by firing up thousands of smudge pots. With oil at 13 cents per gallon, smudging turned out to be a costly operation. Not much is known about when to smudge and for how long. Appeals are being made to college researchers for some practical information.

Western fruit circles are pleased with the appointment of F. R. Wilcox as acting director of the Office of Foreign Agricultural Relations in the USDA. Wilcox, on leave from his job as assistant general manager of Sunkist Growers, Inc., is well versed in fruit export-import problems. His experience will benefit the fruit industry struggling to regain prewar export markets.

Weed Killer Test

The Dave Naftel orange grove in California's Pomona Valley was the scene of a test with weed-oil products to allow growers to decide for themselves which product best fitted their needs. Ten days after application growers returned to find that 10 out of 13 oils had scored clean, dry kills. Sprays should cover the entire weed and creep down to the roots for complete kill, said Rich Hathway, commercial spray operator. Over 75 per cent of the success of oil weeding of citrus orchards depends on skill of application, he said.

California nurserymen will gather at California Polytechnique Institute campus at San Louis Obispo to hold their annual refresher course on June 10-11. The nurserymen of this state were first organized to stabilize prices and lift standards of the business by Col. Warren in 1858. There are some nurseries in California that started business over a century ago. California Nursery Co. at Niles is one of these centenarians.

Grow Blueberries Right

Knight Pearcy, Salem, Ore., in speaking of the rapid increase of commercial blueberry growing in the Willamette Valley, says that a blueberry patch to be successful should be started correctly. Place plants six to eight feet apart, using peat, compost, or well rotted manures liberally in the planting soil. Sulfur is added, too, to insure an acid soil if tests show it is needed. Mr. Pearcy adds that he has found that blueberry plants respond wonderfully to fertilization with sulphate of ammonia, which is an acid fertilizer. A sawdust mulch of four or five inches deep promotes fine growth and makes hoeing unnecessary.

MODERN PACKAGES FOR GOLDEN STATE BERRIES

CALIFORNIA will have a record crop of strawberries going to market this year and the recently organized Central California Berry Growers Association at San Jose is ready to meet the situation with long-range marketing plans and new ideas on quality packaging and shipping.

One of the new packaging ideas is a light yellow colored "Fresher Pack" basket manufactured by Allied Plastic Co. of Los Angeles. The plastic basket permits ample ventilation of the berries and at the same time has a lot of eye appeal.

The individual baskets will be packed in a corrugated paperboard master crate or "Basketray" made by Pioneer Flintkote of San Leandro, Calif.

"We developed this basket and crate in response to the association's request, as attractive packaging, they feel, will make it possible for the quality berries of association members to successfully meet competition in the markets outside California where much of the big increased production must go," said Walton B. Crane, prominent Los Angeles package designer.

Strawberry acreage in California this year is up 1,000 acres over last year's large total acreage of 8,400.—*F. Hal Higgins.*

Package designer Walton B. Crane holding "Fresher Pack" basket in which fresh strawberries of California Berry Growers Association members will go to market this year. Baskets are packed in new master container "Basketray," illustrated. Fork lift trucks speed handling.

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This Bag is designed to save fruit, holds one bushel and is comfortable on the picker. With its wide padded metal top rim, specially designed rope side fasteners, wide shoulder strap and spring tension back, this Bag far surpasses any bag on the market today. Sample Bag $3.95 Postpaid. Send Dealer's name with order. We are interested in good dealers —several very profitable territories still available.

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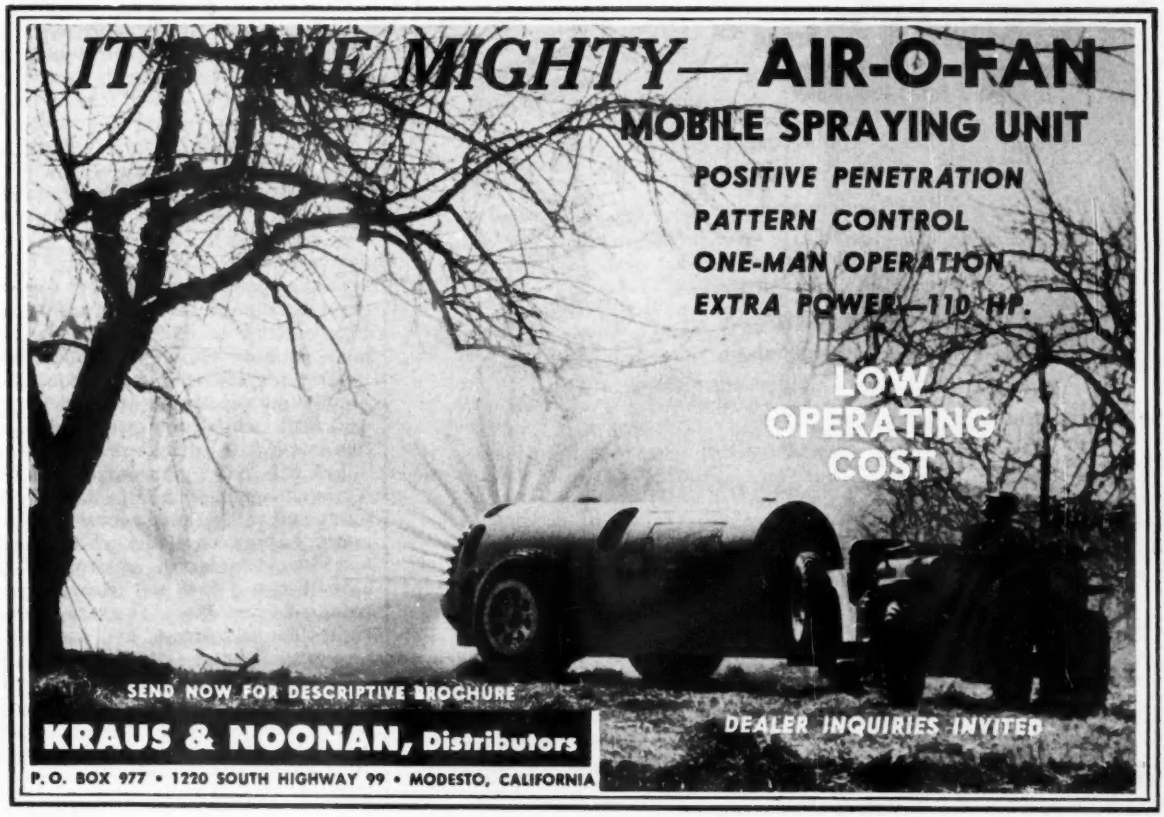
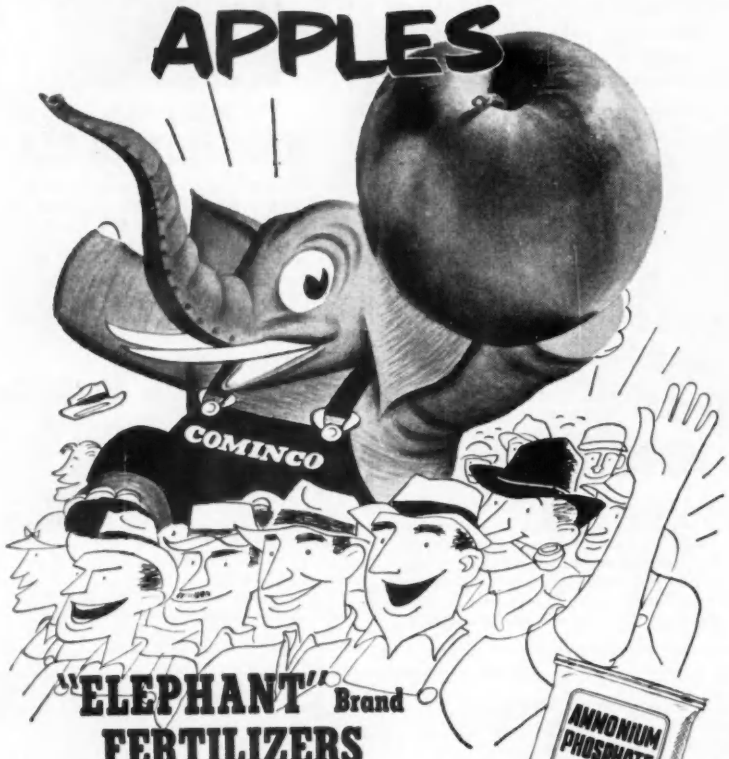


elephant
GROWS MORE APPLES



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Oregon Grower Ices His Plants

In this way he keeps them warm when Jack Frost pays a visit

SIX TONS of strawberries to the acre! That's the record harvest O. C. Frogley of Salem, Ore., gathered from his five-acre field of Marshalls last year. He attributes his 31-ton total production of large, flavorable berries to his ability to ward off damaging spring frosts by protecting his plants with a coating of ice.

Frogley has a well right in his berry patch and a good irrigation system. He uses a motor and centrifugal pump, has a five-inch main line running along the fence at the head of the field, and three-inch lateral lines every 60 feet running the full length of the field from this five-inch main. This gives him better pressure. The aluminum pipes are equipped with pressure turn-off valves so he can run any particular line he wishes.

Success Formula

Here is the secret of Frogley's success: Near his house he has a thermostat set for 34° and when the temperature gets that low an alarm clock goes off beside his bed. Frogley and his wife immediately pop out of bed irrespective of the hour and go into the berry field, test the leaves to see if a film of ice is forming, and if so turn on the sprinklers.

A run of about 15 minutes and a solid coating of ice forms on the plants. When the sun comes over the hill in the morning the plants thaw out slowly and the result is no damage.

While many other growers lost a great portion of their crop last year Frogley had no damage at all. His next door neighbor has a similar irrigation system; however, not having enough pipe to cover his field he uses high school youngsters to help him move the sprinklers.

In early March of this year Frogley was setting up his irrigation pump and getting ready for whatever might happen to plants which were already well started in growth. A half dozen geese had cleared the patch of every blade of grass in the eight-inch wide rows, and an Allis-Chalmers tractor stood ready for working the ground as soon as it was ready. Frogley was looking forward in this second year of production of his five acre field to breaking his 1952 production record.—*Wanda M. Gifford.*

WASHINGTON FRUIT LETTER

- **Income of U. S. Citizen Highest in History**
- **Off-Shore Labor Program Extended**

By LARSTON D. FARRAR
Washington Correspondent, American Fruit Grower

CONSIDERING the favorable economic factors at work personal income in the U. S. has reached the fantastically high annual level of $282,500,000,000, the Department of Commerce has reported. It hit this level in March, and has continued on that plateau. This means that the average American has more money, after taxes, than ever before in history. And because this American must spend less for items such as steak, pork, and other meats, he has more left to spend on fruits—if he desires.

There is no question about the boom. There are more persons gainfully employed now than at any time in American history. Not counting soldiers (who also draw high wages), there are some 62,800,000 persons employed, most of them drawing more money than they ever thought they might.

How they spend their money depends on many factors—what kind of advertising they see or hear, what they are taught to buy from watching their parents, the quality and taste of produce they are offered, and many other factors. They *could* be buying apples, pears, and other fruits in record-breaking quantities, *if* the right techniques were used to make them want to buy these commodities. That's the challenge.

THE House of Representatives has voted to extend for three years the period in which agricultural workers may be recruited from Mexico (when an adequate number of workers is not available from the domestic labor force) to help in growing, harvesting, and processing food crops. The Senate not yet has acted on this renewal, which fruit growers generally favor.

Proponents of the importation of foreign labor point out that the farmer who uses such labor does not get it "cheaply" as opponents charge. The farmer must pay the Mexican worker the prevailing wage in the community. He must give each worker an insurance policy against accidents. He must pay transportation charges from the assembling center far into Mexico to the reception center at the border and back to such place after the work is done.

In addition, he must provide living accommodations, water, fuel for heating, cooking utensils, beds, mattresses, blankets and all other such facilities. If there were any possible opportunity to obtain a sufficient number of local laborers, the farmer would take them in preference to the Mexican workers.

Yet, in the face of these facts, the labor unions almost invariably fight bitterly against the legislation allowing the U. S. and Mexico to make agreements by which to import these workers for a part of the year. In spite of such opposition, the Senate likely will pass the renewing legislation just as the House did—by a vote of about three to one.

CREDIT needs of farmers are getting attention from some Congressmen, such as representative Walt Horan (R.-Wash.), the Wenatchee apple orchardist who knows how much credit means to many farmers.

Representative Clifford R. Hope (R.-Kans.), chairman of the House Committee on Agriculture, has introduced a farm organization-sponsored bill reorganizing the Farm Credit Administration and placing its control under a 13-member board.

"As I am sure most people are aware, the mechanization and modernization of agriculture has increased tremendously within the past few years the amount of capital the farmer must invest in his farm and his farming operation," Mr. Hope pointed out. "Farming is a business. The need for credit of various types and for various periods to carry on the farming operation is just as urgent as the credit requirements of any other business. The farmer's credit requirements are different from other businesses, however, and cannot always be met by commercial credit institutions."

PRESIDENT Dwight D. Eisenhower has written to Representative James T. Patterson (R.-Conn.) relating to agricultural deferments under Selective Service and has agreed that neither the law nor the regulations of Selective Service preclude more than one deferment, and that "each individual's deferment may be continued on an individual basis wherever in the judgment of the local board the national interest so indicates."

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when you use
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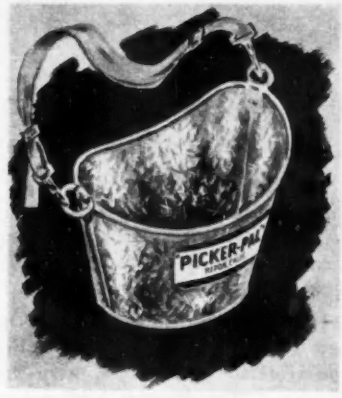

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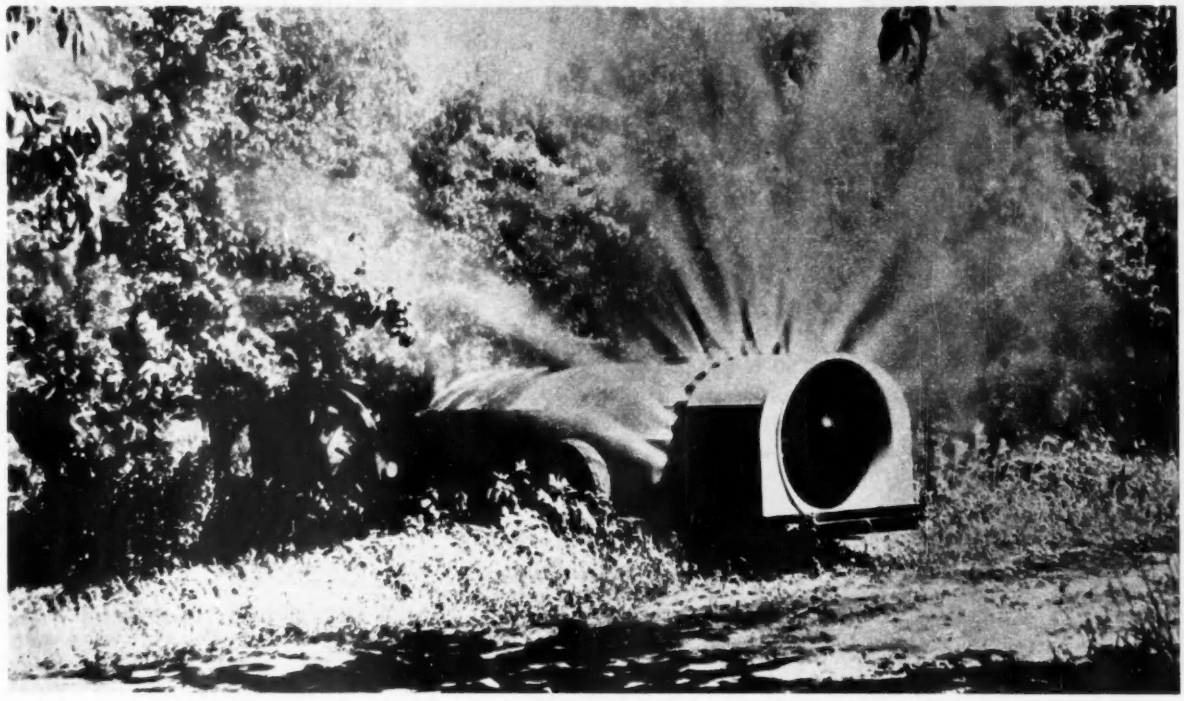

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Captan 50-W gives control of a wide variety of diseases of Apples, Peaches, Plums, Cherries, Strawberries and other fruit.
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THE QUESTION BOX

I have a nine-year-old cling peach tree which does not produce developed seeds. The pits are about half the size of Elberta pits. The cavity in the tiny pits is normal, but only a little dry skin of a seed is found. Is this normal?—*California*

Early-ripening varieties of stone fruits (peaches, cherries, plums, apricots) commonly have so-called "abortive" embryos. The seed starts to develop then is checked by some yet unknown process. The fruit continues to grow but the seed, which is inside the pit, aborts and shrivels. The old Greensboro peach seldom, if ever, produces viable seed. Likewise, the Early Purple Guigne sweet cherry seldom develops good seed. The Phillips peach is a borderline variety and characteristically has a high percentage of poorly developed seed.

Can you tell me where I can purchase some Amide, which is used for thinning fruit? —*Pennsylvania*

You can buy Amide from American Chemical Paint Co., Agricultural Chemicals Div., Ambler, Pa.

Where can I buy true-to-name Carpathian walnut trees?—*New Jersey*

Write W. N. Scarff's Sons, New Carlisle, Ohio; Bountiful Ridge Nurseries, Princess Anne, Md.; and Berbow Nurseries, Huxley, Iowa.

Where should I deliver my strawberries when no place of delivery was specified at the time they were sold?—*Missouri*

According to a similar case in Missouri law, "When nothing is said about it in the bargain, it seems to be taken for granted, almost universally, that the goods are to be at the buyer's disposal at the place where they are when sold—the store of the merchant, the shop of the manufacturer, or the farm of the farmer, when the contract is silent as to the place."

Where can I purchase activated carbon for use with parathion or EPN to avoid injury on my McIntosh trees?—*Illinois*

Activated carbon C-115-N (Nuchar) is available from West Virginia Pulp and Paper Company, 2775 East 132nd St., Cleveland, Ohio.

How much water is there in an apple?— *Ohio*

The amount of water in an apple increases steadily as the fruit develops on the tree. Also, the percentage of water in different varieties of apples varies somewhat. A range between 78.9 to 90.9 per cent has been reported.

CALENDAR OF COMING MEETINGS AND EXHIBITS

June 4-6—Annual strawberry festival, Lebanon, Ore.

June 7-9—Michigan Canners' Conference, Park Place Hotel, Traverse City, Mich.

June 13—New Jersey State Horticultural Society summer meeting, tentatively planned to take place at Rutgers University, the State University of New Jersey, New Brunswick.—A. J. Farley, Sec'y., New Brunswick.

June 17-19—National Apple Institute annual meeting, Roanoke, Va.—Truman Nold, Sec'y, 726 Jackson Place, Washington 6, D.C.

June 20—Connecticut Pomological Society and New York & New England Apple Institute joint summer meeting, Avalon Orchards, Bantam, Conn.—S. P. Hollister, Sec'y; Conn. Society, Storrs.

June 20-27—Cherry Festival Week, Emmett, Idaho, sponsored by American Legion. Queen will be crowned.

June 22-24—South Dakota State Horticultural Society annual meeting, in conjunction with Federated Garden Clubs, Britton.—W. A. Simmons, Sec'y, Sioux Falls.

June 24—Illinois State Horticultural Society orchard day, Nugent Shipanski Orchards, Grafton. Program will feature orchard machinery and supply exhibits, demonstrations, entertainment by radio personalities, and lunch.—Harold J. Hartley, Sec'y, Carbondale.

July 8-10—Michigan Cherry Festival, Traverse City.—Merle Lutz, Sec'y, Traverse City.

July 9—Indiana Horticultural Society summer meeting and orchard tour, Doud Orchards, Wabash. Equipment demonstrations.—R. L. Klackle, Sec'y, West Lafayette.

July 14-15—Texas Pecan Growers Association 32nd annual meeting, Memorial Student Center, College Station.—John E. Hutchison, Sec'y, College Station.

July 15 (tentative)—Maryland State Horticultural Society summer field meeting, Thurmont.—A. F. Vierheller, Sec'y, College Park.

July 19—Idaho Horticultural Society summer picnic and tour, Wilder.—Anton S. Horn, Sec'y., Boise.

July 22—University of Connecticut annual field day, Storrs. Orchard experiments and equipment will be featured.—Arthur C. Bobb, Ext. Fruit Spec., Storrs.

July 23—Western Colorado Fruit Experiment Station field day and tentative summer meeting Western Colorado Horticultural Society, Austin.—L. L. Mariner, Sec'y, Clifton.

July 28-29—State Horticultural Association of Pennsylvania and West Virginia Horticultural Society joint field days, Treesdale Orchards, Mars, Pa., and Hillcrest Orchards, Chester, W. Va.—J. U. Ruef, Sec'y, Penn. Society, State College; Carroll R. Miller, Sec'y, W.Va. Society, Martinsburg.

July (dates not established)—Ohio State Horticultural Society bus tour through Michigan fruit sections.—C. W. Ellenwood, Sec'y, Wooster.

Aug. 10-13—International Apple Association 59th annual convention, Hotel Sherman, Chicago, Ill.—Norbert W. Eschmeyer, Sec'y, 1302 18th St. N. W., Washington 6, D. C.

Aug. 12—Maine State Pomological Society annual field meeting, Highmoor Farm, Monmouth.—F. J. McDonald, Sec'y, Monmouth.

Aug. 14—Massachusetts Fruit Growers Association summer meeting, Davis Orchard, Bolton.—A. P. French, Sec'y, Amherst.

Aug. 26—Minnesota-Wisconsin annual orchard tour, LaCrescent, Minn.—J. D. Winter, Sec'y, Mound, Minn.

Aug. 31-Sept. 2—Northern Nut Growers Association annual meeting and tour, Rochester, N.Y.—George Salzer, Vice-Pres., 169 Garford Road, Rochester, N.Y.

Sept.—Illinois State fruit festival, Murphysboro.

Sept. 26—Sixth Annual Cranberry Festival, Edaville Plantation, South Carver, Mass.—L. R. Williams, Merch. Mgr., American Cranberry Exchange, 5 S. Sixth St., New Bedford, Mass.

Oct. 22-31—National Apple Week.—National Apple Week Assn., 1302 18th St., N.W., Washington 6, D.C.

Nov. 3-5—Florida State Horticultural Society 66th annual meeting, Daytona Beach.—E. L. Spencer, Sec'y, Bradenton.

Nov. 5-6—Minnesota Fruit Growers Association and Wisconsin State Horticultural Society joint annual meeting, La Crosse, Wis.—J. D. Winter, Sec'y, Mound, Minn.

Nov. 18—Iowa Fruit Growers Association annual meeting, Iowa State College, Ames.—R. G. Raines, Sec'y, State House, Des Moines.

Dec. 3-4—Oregon State Horticultural Society 68th annual meeting, Oregon State College, Corvallis.—C. O. Rawlings, Sec'y, Corvallis.

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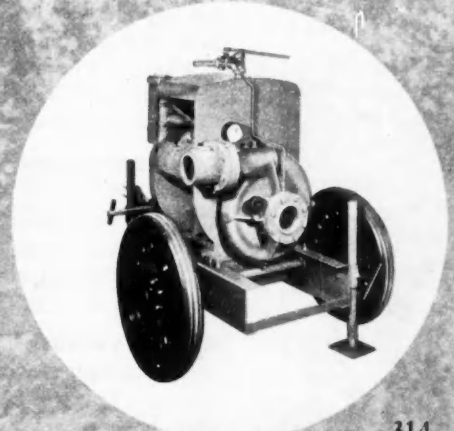

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Yields are improved the first year you use "Fermate" and pull ahead even more each succeeding year. For "Fermate" doesn't burn the foliage while it controls disease. Trees can put their full strength into fruit production, so you get more apples, and fewer culls or drops. "Fermate" helps lengthen the crop development season, so you get ar extended harvest period.

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WHAT ARE YOUR WATER RIGHTS?

Diverting water from a nearby stream for irrigation purposes may involve a risk you cannot afford to take

By RALEIGH BARLOWE
Michigan State College

WATER RIGHTS for irrigation purposes has long been a problem of crucial economic and legal significance in the West. It is rapidly becoming more important in the states that lie east of the Rockies.

Farmers get their irrigation water from three principal sources: streams and lakes, wells, and runoff surface waters which may be used or impounded for future use before they reach a lake, pond, or well-defined stream. Different legal principles apply to each of these. For the most part, landowners have a clear right to the use of surface runoff waters on their lands. The problem regarding the use of waters from streams or lakes and from ground sources, however, is somewhat more complicated.

Riparian Doctrine

In the eastern states rights to water from lakes and streams are governed by the legal concept known as the riparian doctrine. According to this doctrine every owner whose property touches a stream or lake has riparian rights. Strictly interpreted, riparian owners enjoy a right to have water flow by or through their lands undiminished in quantity and unpolluted in quality except for its use by upstream owners for domestic purposes. They may use the water for purposes such as fishing, bathing, navigation, and in some cases power. But except for domestic and stock-watering purposes, they are not entitled to divert or appropriate water from riparian sources.

In actual practice this doctrine has been modified in most states to permit some irrigation. The Great Plains states, for example, permit the appropriation of substantial volumes of water for irrigation purposes. Many states further east permit the use of reasonable amounts of water for the irrigation of lawns, gardens, and farm crops.

Some lawyers argue that this modification does or should apply in all eastern states. It may some day, but there are still some states where the situation is unsettled because neither the legislatures nor the courts have indicated acceptance of the modified doctrine. Until some definitive action is taken in these states, no farmer can feel really secure in his right to take riparian waters for irrigation.

Even under the modified riparian doctrine, irrigation rights are limited. They may be exercised only by riparian owners and due regard must be given to the water rights of all other riparian owners. Also, the determination of what constitutes a reasonable use of the water depends upon a number of factors such as size of the stream, season of the year, streamflow needed for maintenance of normal riparian uses, amount of irrigation water needed, and competition with other irrigators.

Under the modified riparian approach, downstream riparian owners usually have no right to object to the upstream use of water for irrigation unless they suffer material injury. But remember that the peak demand for irrigation ordinarily comes at a period of low water levels. If many farmers irrigate and the supply of water is at all limited, valid claims of damage may be expected.

Complaints may come from power companies, beach and other recreational property owners, fishermen, navigation interests, cities that depend upon streams for water supplies or sewage waste disposal, and from riparian owners who may depend upon the stream for domestic or stock-watering purposes. If any of these users of water can show real damage they may request and secure court action to restrain the farmer in his use of water for irrigation.

No Priority

Another water rights problem stems from the fact that most eastern states make no provision for rights of prior appropriation. Under the riparian doctrine every owner shares his water use rights with other riparian owners. No owner can acquire a priority in use rights over others. A farmer may demonstrate that irrigation really pays in his community. By this action, however, he cannot secure any priority in water use rights. He has no protection should upstream operators follow his example and install irrigation sys-

tems that may deprive him of the bulk of his water supply.

Some states have given serious consideration to the problem of spelling out and clarifying the water rights that irrigators have to the use of water from streams and lakes. Where no action has been taken, the farmer who wants to irrigate must take some definite risks. In a sense he approaches the problem blindfolded because 1) he is not always sure that he has a right to take water for irrigation, 2) his operations may be stopped by injunction if his actions cause material damage to other riparian users, and 3) much of the value of his investment may be lost if upper riparian owners decide to draw on his limited supply of water for irrigating their crops.

Definitive action is needed in many states to give the farm irrigator the security he needs. In the absence of this type of action many farmers may wish to consider the prospects for using ground waters for irrigation. Two doctrines apply regarding the use of waters from wells. Under the common-law rule which still prevails in many eastern states, the landowner is free to use ground water from his land in almost any manner he chooses.

Because of inequities caused by unreasonable withdrawals from common underground supplies, this doctrine has been modified in many states by the rule of reasonable use. Under this rule, owners may be prevented from wasteful or unauthorized practices and under some circumstances may be prevented from pumping more than their equitable share of the water if their action has an adverse effect upon others. But they may still use ground water for a wide variety of uses, including irrigation. THE END

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GROWTH OF IRRIGATION IN HUMID AREAS

Water management is now being recognized by growers as an essential cultural practice

By T. H. QUACKENBUSH
U. S. Soil Conservation Service

RAINFALL records show that throughout the humid area of the United States average annual rainfall is usually adequate and sometimes more than adequate to raise a good crop. Then why irrigate?

To the farmer concerned about removing surplus water from his land so he can work his fields irrigation may not sound too important. But why do the job half way? Drainage is only a part of controlling soil moisture. Supplying additional water to the soil storage reservoir during periods of drought is another important part of water management.

Weather records reveal that the "humid" areas are subject to droughts during which the moisture stored in the soil is not sufficient to supply the crop needs for maximum plant growth. Total precipitation may be ample but it may come at the wrong time. Then moisture deficiencies occur during the growing season. This will either reduce yields or lower the quality of the product, or both.

Irrigation is being used increasingly in humid areas for various fruits, intensively grown shallow-rooted crops such as vegetables, berries, flowers, and tobacco, and for high-producing pastures and other forage and field crops where temporary water shortage sometimes lowers yields seriously.

Rapid Development

Development of irrigation in the humid and sub-humid areas was slow until about 1920, when improved farm prices and pumping and sprinkler equipment increased the interest in irrigation, particularly in New Jersey, New York, Florida, Arkansas, and Louisiana. By 1940 a total of 298,000 acres was being irrigated in this area.

The drought of the 1930's, high farm prices, better marketing facilities, and improved irrigation equipment, particularly portable sprinklers, and greater availability of electricity in rural areas gave further impetus to irrigation farming.

In the decade from 1940 to 1950, the area of irrigated lands in the humid parts of the country increased from less than 300,000 acres to almost 800,000. These figures do not include the rice lands of Louisiana, Arkansas, and east Texas where some 1,600,000 acres were being irrigated in 1950.

Sprinkler Method Popular

Of the 800,000 acres being irrigated in the high rainfall area, more than 400,000 acres are being irrigated with sprinklers. When it is considered that it has been since the cessation of hostilities in World War II that most of this expansion has taken place, it is all the more impressive.

It has been estimated that the number of sprinkler systems in the state of Georgia increased by 60 per cent in 1952 over 1951. A good part of this expansion was due to the severe drought of 1952, but interest seems to remain high as more and more farmers report outstanding financial suc-

LAND IRRIGATED BY SPRINKLER METHOD, 1949

State	*Acres*	*State*	*Acres*	*State*	*Acres*
Maine	2,131	North Dakota	318	Arkansas	1,676
New Hampshire	556	South Dakota	391	Louisiana	1,067
Vermont	259	Nebraska	8,295	Oklahoma	2,072
Massachusetts	6,706	Kansas	3,121	Texas	41,508
Rhode Island	1,462	Delaware	404	Montana	15,520
Connecticut	7,669	Maryland	568	Idaho	9,995
New York	16,361	Dist. of Columbia	13	Wyoming	581
New Jersey	19,058	Virginia	2,762	Colorado	8,194
Pennsylvania	6,611	West Virginia	14	New Mexico	1,822
Ohio	5,134	North Carolina	1,883	Arizona	4,011
Indiana	5,285	South Carolina	1,793	Utah	1,766
Illinois	1,400	Georgia	2,249	Nevada	1,435
Michigan	11,894	Florida	80,091	Washington	67,852
Wisconsin	7,492	Kentucky	46	Oregon	98,769
Minnesota	4,097	Tennessee	971	California	181,828
Iowa	1,149	Alabama	300		
Missouri	931	Mississippi	177	TOTAL ACREAGE	639,987

cess with their ventures into irrigation.

Some farmers purchase irrigation systems with the idea of using them for "crop insurance," that is, to put on some water and save the crop when it gets dry. They are like the man who buys a large expensive pump and then operates it at half capacity. Why pay the price of an expensive annuity policy and reap only the dividends of the cheapest term insurance on the market?

Good irrigation farmers in the humid areas are finding that irrigation is not "supplemental". It is an essential part of their farming operation because it eliminates drought—one of the ancient hazards of farming.

Effective, profitable irrigation farming in humid areas is more than applying some water when it gets dry. It involves proper use of land, crop rotations, legumes, manure and fertilizers, labor management, and equipment. All these must be considered for maximum financial success.

Know Your Soil Needs

The most important single thing is to irrigate in accordance with the needs and capacity of the soil. Farmers are giving increasing attention to water management, including irrigation, as part of modern conservation farming systems which they develop with technical help from the U.S. Soil Conservation Service, available through their locally-organized and administered soil conservation districts. The soil is the moisture storage reservoir and we must keep that reservoir at the proper level.

If we watch the sky for clouds, hoping it will rain, or put the water on when plants start to wilt, we are too late; the damage is done. Get a "worm's eye" view of your farm, know the soil and apply water when the *soil* needs it, don't wait for the plant to show the need.

Why irrigate in humid areas? The answer is simple: If it is done right it pays in cold hard cash! THE END

HARDIE ENTERS IRRIGATION FIELD

THE Hardie Manufacturing Company of Michigan, California, and Oregon has bought all of the assets, excepting real estate, of the Rain Control Irrigation Company of Los Angeles. Rain Control Portable Irrigation Sprinkler Systems will be manufactured and sold exclusively by The Hardie Company.

James O. Davis of Los Angeles, general manager of Rain Control Irrigation Company, has joined the Hardie oragnization as sales manager of the Irrigation Division.

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for everybody in America lives better because we have railroads which, every day in the year, haul for you—and for every other man, woman and child in the country—an average of more than 10 tons of freight a mile.
That's more freight than is moved by all other forms of transportation put together—and it is moved at a lower average cost than by any other form of general transportation.
Last year, for the sixth time in a row, railroad freight trains set a new efficiency record—hauling more goods, on the average, and hauling them faster, than ever before.
And these trains are important to you because they help keep down the cost of the things you eat, wear and use—and help make your highways safer and longer lasting.
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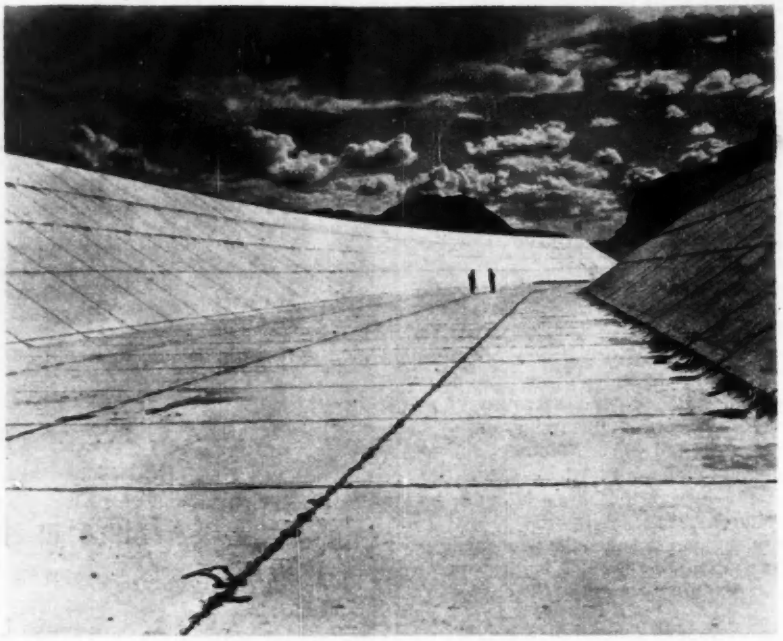


Water highway on Columbia Basin project, wide enough to accommodate four lanes of auto traffic with room to spare, carries water to 87,000 acres in state of Washington.

FEDERAL IRRIGATION PROJECTS

New areas for fruit production are being opened up. Here is a summary by the Bureau of Reclamation on the situation today and future possibilities.

By E. D. EATON

Bureau of Reclamation

THE West's contribution to the national and world fruit markets has been increased and stabilized by the Federal Reclamation program to such a degree that in recent years $100 million harvests are taken from federally irrigated acres each year.

This figure represents a steady growth, only part of which reflects a higher market value for orchard products. A major factor in the increase is the growing acreage of western lands which receives either a full or supplemental supply of irrigation water from federal projects.

There are, of course, such longtime federally constructed standbys in the national fruit production picture as the Salt River and Yuma projects in Arizona, the Boise project in Idaho, and the Yakima project in Washington. Fruit harvest from these four projects alone was valued at $23 million in 1952. But in recent years there has been tremendous orchard acreage added to many projects receiving water from federally built irrigation works.

Notable among these is the rich Central Valley of California, where a critical shortage in both surface and ground water has been alleviated by the near completion of far flung distribution works which is taking water from Shasta Dam and supplying irrigators as far south as Bakersfield, 500 miles distant. An increase in the $34,208,274 fruit harvest in this area from 116,729 acres receiving federal water in 1952 is anticipated in future years as the water supply is ever further stabilized.

Also in southern California is the rich Coachella Valley which has been receiving water from a branch of the All-American Canal in recent years. A harvest last year from 33,489 acres, largely in citrus and small fruits, was valued at $18,777,683.

Additions have been made in recent years to both the Yakima and Boise projects in the Pacific Northwest but the major new development in this area is the Columbia Basin project. The first large scale irrigation from this project was accomplished only

last year but the Bureau of Reclamation hopes to bring approximately 60,000 acres a year "under the ditch" in this central Washington area for the next decade and it may safely be anticipated that a portion of this will be in orchards.

Of particular importance is the restoration to development of approximately 87,000 acres on the Wahluke slope, which is across the Columbia River from the Hanford works of the Atomic Energy Commission. The AEC, which had ordered this land withdrawn for security reasons, has recently agreed that development may proceed. This area is very similar to the Yakima Valley and lends itself to fruit production.

Arizona Project

A major addition in the citrus belt is expected to be the Gila project, located east of the Yuma project in southwestern Arizona. While now devoted largely to alfalfa and other soil-building crops, the sandy acres are expected to be dotted with citrus groves before too many years have passed.

It is entirely possible that as the large scale development of the Missouri River Basin proceeds, fruit production may be added to irrigated acreage in this semi-humid belt stretching through Kansas, Nebraska, and the Dakotas. The nearby population centers of the Midwest offer a rich market if the availability of irrigation water and low cost power for pump and sprinkler operations provide the stimulus which is needed to get orchard operations started in this area. THE END

PERMANENT MULCH

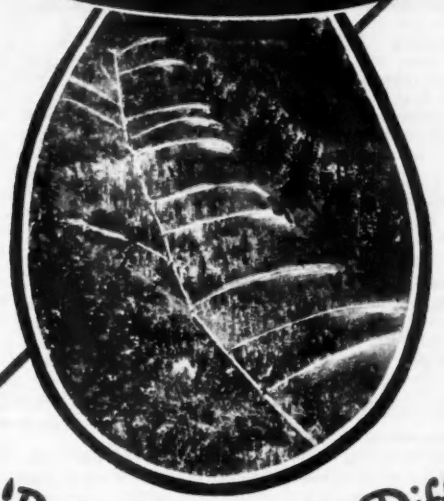
ORCHARDISTS, in my opinion, do not utilize all of the different kinds of mulching materials that are available for fruit trees. Some use sawdust or wood shavings obtained from sawmills, or cornstalks, or sometimes spoiled hay. A few grow their own mulch.

In our orchards in Hammonton, N.J., we have been growing our own mulch for several years. A permanent sod is growing in our peach orchard and a clover-bluegrass sod around our 10-year-old apple trees; no other mulching materials being added.

Just after Thanksgiving each year we put five tons of chicken manure per acre around the apple trees, applying it about five feet from the trunks. The trees thrive on this treatment. For the last three years we have had an average of 235 bushels of apples per acre.—*James Shoemaker.*

Cut Crop-Producing Costs to Boost Profits!

WADE RAIN
Sprinkler Irrigation



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In all row and hill crops, the Wigle Hoeing Attachment will do the work of 6-8 hand hoes. Hoes 5-7 acres per day. Properly mulches soil, encouraging healthy growth. Thousands of farmers all over the country are using the Wigle Hoeing Attachment to save time, labor and money.

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ARE YOUR *Blueberries*

Tests show soil acidity affects response of plants to different forms of nitrogen fertilizer

RECENT experiments at the New York State Agricultural Experiment Station at Geneva on blueberries have turned up some interesting facts about the application of nitrogen.

Before beginning these experiments, however, it was necessary to do something about the fairly heavy soil in which the blueberries were growing. First sawdust was added to make the soil more porous as the fine fibrous hairlike roots of the blueberry plant are unable to grow in heavy, compact soil.

This improved the root growth, but the plants were still yellow and the tops grew poorly. Analysis of the plants indicated that they were not getting enough nitrogen, even though they had been generously fertilized with a 5-10-5 fertilizer.

Nitrogen Fertilizers Tested

Several different kinds of nitrogen fertilizer materials were then tried on plants potted in a mixture of equal parts of the soil and sawdust. Some of these materials contained ammonium nitrogen, some nitrate nitrogen, and one, ammonium nitrate which contained both of these forms of nitrogen in equal amounts.

The experiment showed that though each group of plants received the same amount of total nitrogen, better growth and foliage were obtained where it was supplied in the ammonium form. Also, more nitrogen was absorbed in this form. In no case did a plant grow satisfactorily when the nitrogen was supplied in the nitrate form.

In another experiment plants were grown in pure white sand to which was added identical nutrient solutions except one contained sodium nitrate and the other ammonium chloride. The same acidity (pH 5.5) was maintained in both cases. The plants receiving nitrate were very yellow and made extremely poor growth. Those receiving the ammonium form of nitrogen were vigorous and healthy, making five to 10 times the amount of growth of the nitrate-treated plants.

The addition of ammonium nitrogen to some of the plants formerly receiving nitrates stimulated new shoot growth and caused the foliage to turn green in less than three weeks time.

WATCH FOR JULY

DIRECTORY ISSUE

Insist on HALE

Irrigation Pumping Units for Your Pasture or Orchard

Last year the Hale Irrigation Unit at right saved the dairy business that depended on the 26 acre pasture partly shown below.

Whatever the size of your Pasture, Orchard, or Grove you can depend on a HALE UNIT to keep it "producing."

Write today for full information on Hale Irrigation Pumping Units. Please state No. of acres and source of water available.

IRRIGATION DIVISION

HALE FIRE PUMP CO.
Conshohocken, Pa.

THRIVING?

Blueberry cuttings after one growing season when the plants were fed with 1) ammonium sulfate, 2) ammonium nitrate, and 3) sodium nitrate.

It is believed that the blueberry plant is unable to convert nitrates into forms readily synthesized into protein and protoplasm essential for growth when the soil pH is above about 5.0. However, the ammonium form seems to be readily utilized under these conditions. Under very acid soil conditions (below pH 5.0) either form is utilized.

Also, nitrifying organisms which convert ammonium nitrogen into nitrate nitrogen are most active under these soil conditions. Therefore it is difficult to keep the ammonium form of nitrogen present in the soil for any length of time.

This difficulty can be partially overcome by frequent applications of ammonium sulfate to the plants. A small handful per plant every two or three weeks should give satisfactory results.

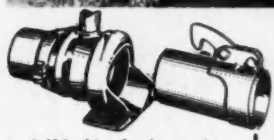
The plants should also be well mulched to keep moisture near the surface where the roots are most active.

Heavy Pruning Advocated

Blueberries must be pruned rather heavily to maintain good production of large fruit. The primary objective is to reduce the fruit crop to prevent over-bearing, which causes small berries and poor bush growth. Proper pruning also prevents the bush from becoming twiggy.

Pruning is best done in the early spring before the bushes come into bloom. All short twiggy growths should be removed leaving only vigorous new shoots six inches or more in length. If these contain too many fruit buds, some of them can be cut to leave only three or four fruit buds per shoot. This will result in large berries, more vigorous shoot growth, and a better producing plant the following year. THE END

SHUR-RANE® PORTABLE IRRIGATION



- Self-locking latch speeds coupling and uncoupling; saves labor.
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WILLOUGHBY, OHIO

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FROM POMOLOGY TO OLERICULTURE*

*The culture of edible vegetables

The AMERICAN FRUIT GROWER with 70 years experience in fruit production is entering the vegetable field with a new magazine entitled, AMERICAN VEGETABLE GROWER. We will offer vegetable growers the same counsel and guidance that the fruit growers have enjoyed down through the years.

The articles in AMERICAN VEGETABLE GROWER will be written by the Nation's best authorities on vegetable production. We will cover:—Soils, Fertilizers, Conditioners and Fumigants—Seeds and Plants, particularly new strains and varieties for increased production—Insect and Disease Control with emphasis on the new organic materials for better control and larger yields—Sprayers and Dusters for easier application of Insecticides and Fungicides—Consumer Packaging for greater profits. Merchandising helps to develop new sales outlets. These and many other features are planned for early issues of AMERICAN VEGETABLE GROWER.

FOR A LIMITED TIME WE ARE OFFERING A SPECIAL LOW COMBINATION CHARTER DISCOUNT

Here's the deal—You can extend your present subscription to AMERICAN FRUIT GROWER for one year, and we will also enter a one-year subscription to AMERICAN VEGETABLE GROWER at the special combination price of $1.50. In addition, we will send you FREE OF CHARGE our Compatibility Chart for Insecticides and Fungicides, which has been reprinted in three colors on heavy board suitable for mounting. Or, if you like, we will enter a two-year subscription to AMERICAN VEGETABLE GROWER for $1.00 and also send you our new Compatibility Chart.

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Use Irrigation: Yes ( ) No ( ) Operate own Packing Shed: Yes ( ) No ( )

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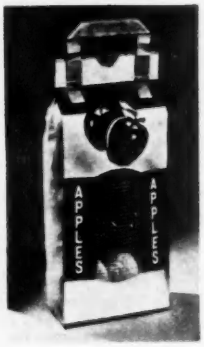
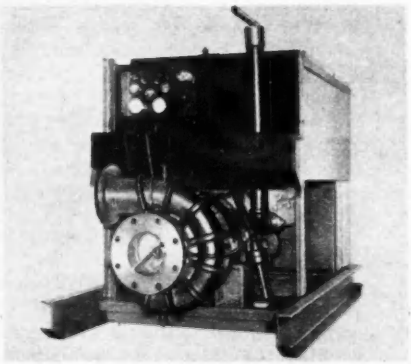
NEW FOR YOU

A Shipper Says



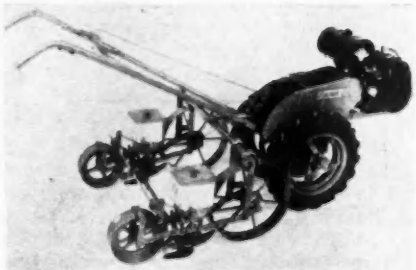
Fred Vahlsing reports that by prepackaging premium grades of fruit are moved faster and with greater profit. He found that the Vent-Vu window bags do the job quickly and cheaply. Mr. Vahlsing came to these conclusions through tests, and he says that because of the wet-strength Kraft safeguards, produce can be shipped safely all over the country. We suggest you write Union Bag & Paper Corporation, Woolworth Bldg., New York 7, N. Y.

Insured Rain



More and more growers are finding it pays to install an irrigation system. Hale irrigation pumps are available in gasoline, diesel, and electric-driven models. The Hale Cir-V irrigation pumping unit pictured above is powered by a 180 h.p. V-8 Industrial engine and is capable of irrigating over 100 acres of orchard. Why not write Hale Fire Pump Company, Conshohocken, Pa.?

Proven

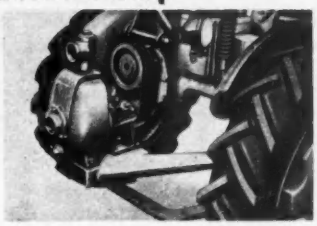


The new Planet tractors, seeders, and fertilizer spreaders do each job with a minimum of time and labor. These tools

- IRRIGATION EQUIPMENT
- PLANET JR. TOOLS

are designed for heavy work, and they are built to last. Planet Jr. tools are made by S. L. Allen & Company, Inc., 3481 N. 5th St., Philadelphia 40, Pa., and they will be delighted to send you full details.

Tractor Pump

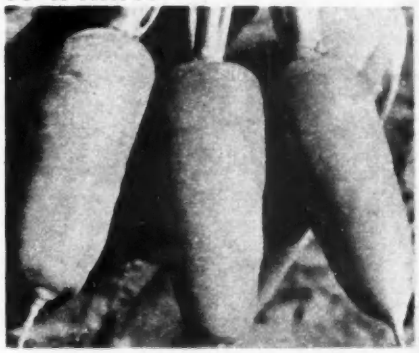


Many growers need a pump only at certain times of the year. The Barnes tractor-driven self-priming centrifugal pump will do a lot of work and save you money. Barnes tractor-mounted pumps can be easily attached to any International Harvester tractor and can be used for many other pumping jobs besides irrigation. Just write F. B. Hout, Barnes Manufacturing Co., Mansfield, Ohio.

Let Electricity Do It

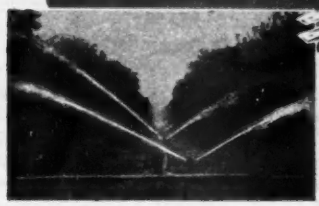
To answer your questions on irrigation pumps and which type motor you should use, the world-famous General Electric Company has just issued a bulletin, GEA-5917. If you would like a copy of this important bulletin, write A. E. Lindholm, General Electric Company, Schenectady 5, N. Y.

A Winner



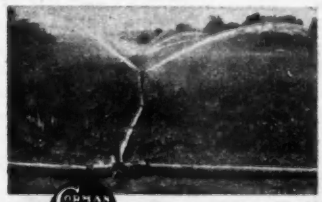
We thought perhaps AMERICAN FRUIT GROWER readers who grow vegetables would like information on the new NK Royal Chantenay carrot. This new carrot gave higher yields than 25 other varieties planted in recent carrot trials on Long Island, N. Y., and growers are reporting as much as a 50 per cent increase in yields. Northrup, King & Company, Dept. AVG, Minneapolis 13, Minn., is the originator of this new variety, and we urge you to write this company for details.

"JEEP" ENGINE DRIVEN IRRIGATION PUMP for ALL CROPS!



Gorman-Rupp pumps assure adequate water for this orchard.

Sufficient water supply for irrigation, as pictured below, results in a larger and better quality crop of potatoes.



GORMAN-RUPP'S "JEEP" Engine Driven IRRIGATION PUMP assures water for larger and better quality FRUIT and VEGETABLES — more verdant PASTURE LANDS, and crops of all kinds.

Famous Willys "JEEP" engine performance and GORMAN-RUPP efficiency and dependability combine to do the job at the lowest fuel cost. The "JEEP" unit NEVER FAILS to deliver.

Heat exchanger cooling makes 5% more of engine H.P. available for pumping. Excellent performance from 250 G.P.M. at 120 pounds pressure to 500 G.P.M. at 55 pounds. Serves both medium and high pressure systems. Thirty-gallon fuel tank.

Ask for Irrigation Bulletin No. 2-IR-11-JX

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Rain Control Portable Sprinkler Irrigation Systems, manufactured by The Hardie Manufacturing Company, save labor, time, operating and maintenance expense—make water go further and do more. Strongest aluminum alloy gives highest resistance to wear and corrosion. Fits any ground. Readily adapted to any acreage. Ask your dealer

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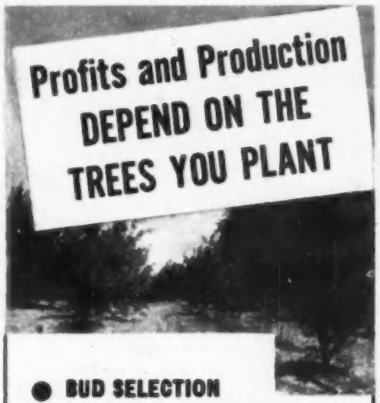

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OPERATING SPRINKLERS MOST EFFICIENTLY

(*Continued from page* 11)

friction in a four-inch aluminum pipe 1,000 feet long is 0.2 h.p. for a flow of 100 g.p.m. and 10.5 h.p. for 400 g.p.m. Or, with 400 g.p.m rate of flow, the power required to overcome friction is 10.5 for four-inch pipe, 1.4 for six-inch pipe, and 0.3 for eight-inch pipe.

7) Operating difficulties can be avoided by care in handling the equipment. Hard blows on the ends of the pipe will cause dents that allow leaks. Defective gaskets in the couplers should be replaced. Bolts, nuts, and rivets on clamps and other fittings should be kept tight. Care in handling the sprinkler heads will prevent damage to the spring. Nozzles should be unstopped if they become clogged with trash. A valve in the riser pipe permits this to be done without shutting down the system.

Bends made too abruptly prevent the rubber gasket in the joint from seating properly and cause leaks. Special fittings such as elbows or tees should be used where sharp angles must be turned.

8) A schedule of operation should be employed that will:

a) Water the entire area before the plants suffer from a lack of moisture.

b) Restore the soil moisture to the water-holding capacity of the soil.

c) Integrate the labor for irrigation with other labor demands on the farm.

9) Best production practices should be followed for maximum returns from the water applied. These include optimum levels of balanced plant nutrients, best varieties, good insect and disease control, proper tillage practices, adequate rotations, and other soil management practices that are known to give best yields.

10) The foregoing nine points indicate that an irrigation system should be engineered for the job to be done. A properly designed system will insure:

- An adequate supply of irrigation water.
- The rate of application in keeping with the infiltration rate of the soil.
- An operating schedule to supply the moisture needs of the crop.
- Minimum friction losses in the pipes.
- Minimum initial investment for equipment consistent with minimum operating costs.
- Maximum returns from applying irrigation water.

THE END

EFFECT OF SPRINKLER SPACING AND OUTPUT ON RATE OF APPLICATION OF WATER

Spacing between sprinklers in feet	Gallons per minute from each sprinkler: 1	3	5	10	20	40
	Rate of application in inches per hour					
20 x 20	.24	.72	1.20			
20 x 40	.12	.36	.60	1.20		
40 x 40		.18	.30	.60	1.20	2.40
40 x 60		.12	.20	.40	.80	1.60
60 x 60			.13	.27	.53	1.07
60 x 80			.10	.20	.40	.80
80 x 80				.15	.30	.60

This vacuum machine on the W. T. Evers farm near Denton, Texas, picks pecans from the ground, rolls them up the elevator-loader, and drops them into sacks. It is mounted on a flat, trailer-type bed about two feet from the ground. A four-cylinder Rockland power engine produces the vacuum. When all the vacuums are in action seven men are required to operate the machine—five carry the vacuum tubes, one watches the sacks, and one drives. Photo courtesy *Acco Press*.

BIG EARLY APPLES WITH IRRIGATION

Transite pipe carries water from hilltop pond to orchard

ON OUR Fay Mountain Farm in Westboro, Mass., where rainfall averages around 45 inches a year, with about three inches in both July and August, we have found that it pays to irrigate. This is especially true of our early apple varieties.

About the first of August we apply from 500 to 1,500 gallons of water per tree, and this irrigation has resulted in increased size and improved finish of our Early McIntosh.

A pond on top of a nearby hill is our source of water. From the pond we ran a six-inch Transite pipe line across the orchard, using 2,600 feet of pipe with three hydrants.

When it is time to irrigate we fill a 500-gallon filler tank on a truck from one of the hydrants and distribute the water directly to each tree. A centrifugal pump on the tank truck speeds up the filling and emptying.

The water is run directly onto the ground around the trees through a two and one-half inch hose and the water sinks into the sod as fast as it is applied, with no run-off.

We are now planning to irrigate our later varieties, including McIntosh, Baldwin, and Delicious, more extensively.

Our method of irrigation is simple, direct, and economical, requiring only one man to operate the tank truck. We also use this equipment to supply our speed sprayer with water and spray materials, thus we keep our tank truck working more hours per year.—*H. P. Gilmore.*

PEACH TREE BORER

(Continued from page 18)

crack or wound, where they feed and grow rapidly.

The hatching period extends over most of the summer and fall, although most of it is concentrated in a period of a few weeks in midsummer in northern localities and in late summer or fall at southern points. Feeding by the borers is heaviest in the fall and spring. Upon becoming full-grown they construct cocoons at or near the entrance to the burrow, where in three to four weeks development is completed and the adults (moths) emerge.

Control. Three methods of control are available. They are 1) spraying the trunk and lower portion of the larger branches during the period of moth emergence and egg-laying; 2) placing paradichlorobenzene crystals or ethylene dichloride emulsion on the ground around the trunk of the tree during the fall or early in the spring; and 3) removing the borers by hand in the fall or spring.

Spray Program

Spraying programs and the preferred time for applying a ground chemical treatment vary considerably from one area to another. Specific recommendations for any given area should be obtained from local authorities. Only general recommendations will be given here.

DDT, six to eight pounds of a 50 per cent wettable powder, or parathion, two to three pounds of a 15 per cent wettable powder in 100 gallons of water are the preferred spray treatments. In the latitude of Virginia and northward two applications, the first between July 1 to 15 and the second about a month later or, if harvest interferes, soon after harvest is complete, are most commonly recommended.

In latitudes south of Virginia three applications, the first July 1 to 15 and the second and third at three or four-week intervals, are recommended. In central Georgia, four applications at four-week intervals, beginning August 1, may be required. If you use parathion, *follow all safety precautions for the use of that material.*

Ground Treatment

Paradichlorobenzene (PDB) crystals should be finely ground and used at the rate of one-fourth to one-half ounce for one- to three year-old trees, three-fourths ounce for four- and five-year-old trees, one ounce for six year and older trees, and one and one-half ounces for unusually large trees.

To apply PDB, smooth the ground to a distance of about a foot around the trunk and apply the chemical evenly in a ring close around but not touching the trunk, late in August or early in September or early October in intermediate areas, and during October in southern areas.

Apply only when the soil is dry and mound the trunk with several shovelfuls of dirt. Remove the mounds from around trees under six years of age after four to six weeks and from around older trees before moth emergence begins the following season.

Care should be taken not to overdose trees less than four years old. Trees of this age are sometimes injured by PDB, especially in the South. The spray treatments are much to be preferred for such trees.

If soil treatments are not applied in the fall, they may be made early in the spring as soon as the soil reaches a temperature of 55° to 60°F.

A commercially-prepared ethylene dichloride emulsion diluted and applied according to directions on the container may be substituted for the PDB crystals by pouring it on the ground around the trunk. The time of application and method of mounding are about the same as for the PDB treatment. Do not use ethylene dichloride mulsion to treat trees in damp, heavy soil. It may injure trees under such conditions.

Hand Removal of Borers

Removing the borers by hand is most useful in small plantings where it is inconvenient to procure the necessary chemicals for the spray or ground treatments. Unless carefully done it is not very effective. In preparing for worming, remove the earth from around the crown of the tree to a depth of four or five inches, or deeper if necessary. Locate the borers in the burrows and remove them with a knife or other suitable tool. Do not cut the sound wood more than necessary, and make necessary cuts vertically.—*Howard Baker, USDA.*

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FOR SALE: GALLON CLEAR GLASS JUGS IN CARtons. N. C. JOHNSTON, Columbia City, Indiana.

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Advertisement

From where I sit ... *by* Joe Marsh

A New Angle for Anglers

The Rod and Gun Club met the other night and the chief topic was what kind of fishing prizes to award this year.

"Squint" Miller got the floor and pulled quite a surprise. He said, "Aren't we awarding prizes to the wrong people? We really ought to give some kind of prizes to the farmers who let us fish on their property!"

Well, that *really* caused a lot of comment and finally "Easy" Peterson got up: "I make a motion when prizes are awarded to our members, twice that prize go to the farmer on whose land the fish was caught!" The motion was passed—unanimously.

From where I sit it's a good illustration of how people learn to "think of the other fellow." Fishermen and farmers, Democrats and Republicans, soda-pop fanciers, and those who prefer a temperate glass of beer—we all have to think of each other. Thoughtfulness and tolerance are "prizes" all Americans should cherish!

Joe Marsh

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SPRINKLER EFFECT

(*Continued from page* 15)

various size drops. At the same time the rate at which the water entered the soil under the various irrigation conditions was noted.

The importance of this is readily recognized. Farmers realize the value of having a soil that will absorb water readily. The infiltration capacity of a soil must be known before an intelligent selection of irrigation equipment can be made. It follows, then, that if a system is designed using a given infiltration capacity and this rate is decreased due to the irrigation, there is a possibility of runoff and subsequent inefficiency.

Experimental results showed that both the soil structure and infiltration capacity are seriously affected by irrigation with the larger drops. This effect is more marked with the heavier soils than with the light ones. The largest drops decreased infiltration into the heavy textured soils by as much as 90 per cent. In the case of a light soil, the largest drops decreased infiltration about 50 per cent. Irrigation with the smaller drops caused a much smaller decrease; this amounted to about 30 per cent regardless of the type of soil.

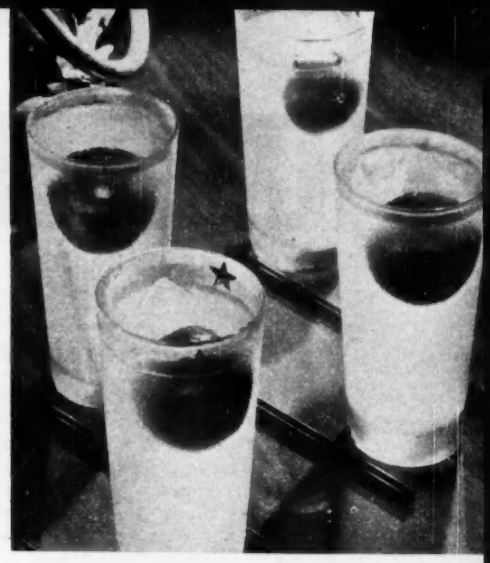
Effect of Drops

The effect of the drops on the structure of the soil was found to be similar to the effect on infiltration. Evidence showed that irrigation with the larger drops resulted in a marked breakdown of the aggregates of the surface soil. The beating action readily seen during a summer rainstorm is amplified under sprinkler irrigation. The instantaneous intensities on small sections of the sprinkler circle are many times greater than occur in natural rainfall.

These are only a few of the problems that are encountered in the proper design of irrigation systems. Further research is necessary to obtain information under field conditions and to investigate more fully all of the factors involved. Nevertheless, even the limited knowledge available at this time, when wisely used, will materially aid in the selection of an efficient irrigation system. It is encouraging to note that more and more growers are learning to expect irrigation systems designed to meet their individual needs. THE END

Read the advertisements and remember advertisers will be glad to send you catalogs, specifications, and prices. Be sure to say you saw it in AMERICAN FRUIT GROWER.

The Orchard Home



JUNE is the month for graduation, and in all probability you will be having graduation parties or maybe just a few special friends in to help celebrate the occasion. Naturally, you will want to serve refreshments, and what can be more inviting and refreshing than an attractive bowl filled to the brim with ice-cold fruit punch. A plate or two of tea sandwiches or a varied assortment of cookies and tea cakes will complete the picture. Pictured at the right is a cool and refreshing punch made with lime juice which can be put together in a jiffy.

Remember, too, that this is the time of year when fresh frozen fruit desserts are in style. Make them either in your refrigerator tray or ice cream freezer.

Below is our featured recipe of the month, Lime Punch, plus other recipes for fruit punches and frozen fruit desserts:

LIME PUNCH

1 cup boiling water
4 teaspoons tea leaves
½ cup sugar
4 cups cold water
1 cup lime juice
1 quart gingerale
Lime slices

Pour boiling water over tea; steep 5 minutes; strain. Add sugar; mix well. Add cold water, lime juice, and gingerale. Pour into punch bowl over ice. Float lime slices on top. Makes 20 servings.

GRAPE PUNCH

2 cups grape juice
2 cups water
¼ cup lemon juice
½ cup orange juice
½ cup sugar

Mix ingredients. Allow to stand until sugar is dissolved. Serve very cold. Serves 6 to 8.

HOLLYWOOD PARADE

1 quart orange juice
1 quart orange sherbet
1 quart vanilla ice cream
1 quart chilled gingerale

Beat orange juice, sherbet, and ice cream with beater until well mixed. Add gingerale. Stir and serve at once from punch bowl. Serves 30.

INDIAN PUNCH

Juice 3 lemons
2 cups sugar
1 quart water
1 lemon rind
2 cups tea
2 cups water
1 teaspoon vanilla extract
1 teaspoon almond extract

Boil sugar, 1 quart water, and lemon rind together for five minutes. Cool. Add remaining ingredients and ice cubes. Makes 1 gallon.—J. M. Lancaster, Lakewood, Colo.

FRUIT PUNCH

1 6-ounce can frozen concentrated orange juice
3 cups pineapple juice
2 cups water
⅓ cup sugar
⅓ cup lemon juice
1½ cups gingerale

Mix fruit juices together. Add water and sugar. Stir to dissolve sugar. Pour in gingerale. Chill with ice cubes or large chunk of ice. Makes about 2 quarts.

SUMMER SUNDAY JULEP

2 tablespoons tea
1 teaspoon grated lemon peel
1 teaspoon grated orange peel
15 to 20 mint leaves
2 cups boiling water
¾ cup honey or syrup
3 cups orange juice
½ cup lemon juice
1 unpeeled orange, sliced
Mint sprigs

Combine tea, grated citrus peel, and mint leaves. Pour boiling water over them and let steep about 5 minutes. Strain. Add sweetening. Stir to dissolve. Cool. Add orange and lemon juice. Pour over cracked ice in 6 tall glasses. Garnish with orange slices and top with sprig of fresh mint.

GINGER PEAR BEVERAGE

Fill tall glasses two-thirds full of pear juice. Drop in two or three bits of candied ginger. Add cracked ice sufficient to insure coldness and serve.

RASPBERRY SHERBET

4 cups raspberries
1 cup sugar
1 cup light cream

Wash berries and mash. Add sugar and let stand for 15 minutes. Beat cream until foamy and light and add to berries. Pour into freezing tray. Set control at coldest point. Freeze to mushy stage. Beat smooth in a chilled bowl. Return to tray and freeze until firm, stirring several times during freezing process. Makes 6 servings. —Mrs. Blanche Campbell, Las Vegas, Nev.

FLORIDA SHERBET

2 cups milk
1 cup sugar
Juice of 1 lemon
Juice of 3 oranges

Heat milk and sugar together until sugar is dissolved. Cool. Put in refrigerator tray in freezing compartment until mixture starts to freeze. Turn mixture into mixing bowl, beat, and add fruit juices. Return to refrigerator tray.—Mrs. Raymond Pearl, Concord, N. H.

APRICOT SHERBET

1½ cups apricot juice
¾ cup sugar
1 cup cream
Juice of 1 lemon

Mix ingredients and put in tray of refrigerator and freeze until mushy stage. Put in mixing bowl and beat with a beater. Return to refrigerator tray and cover with wax paper to prevent crystals.—Mrs. James Shoemaker, Hammonton, N. J.

THIS SUMMER: SUN DRESS WITH BOLERO

Make it a cool, calm, and well-dressed summer. Top item on your wardrobe list should be the pert sun dress that is a dress for all-occasion wear. With it, the wonderful shrug bolero that transforms the costume or merely puts off the chill of an evening. The fabric we suggest—cotton to keep the starched appearance in the smooth, flattering lines of this dress. Size 16 requires 5¼ yards of 35-inch fabric for the dress and bolero; ⅞ yard of 39-inch lining for bolero; 5/4 yard of ¼-inch thick cording. Advance Pattern 6371. Sizes 12 to 18. Price 35 cents.

Send order and cash for patterns to Pattern Department, American Fruit Grower, Willoughby, Ohio. Be sure to specify size. Print name and address clearly.

American Fruit Grower

RICHARD T. MEISTER, *Editor*
H. B. TUKEY, *Associate Editor*

• *Fruit for Health* •

Water, Water, Water

ONE of the stock questions asked at Ph. D. examinations is, "What is the principal constituent of a plant?" The reply often includes nitrogen, chromosomes, boron, proteins, molybdenum, sugars, and cellulose. But the answer that is sought is none of these—it is WATER.

This story illustrates a most important point. Too often in our examination of all the minute details we overlook the important facts. Because while nitrogen, chromosomes, and all the rest are important, the fact remains that a plant is principally a device for holding water.

Water is the great solvent. Water bathes all parts of the plant. Water provides the transportation system within the plant, like the streams, the rivers, and the lakes that carry the boats and the barges of commerce. Yes, a plant is primarily water—80 to 90 per cent.

Further, a plant grows not so much in a mixture of organic and mineral materials of various sizes known as soil, as in a bowl of nice, rich, nutritious soup like "mother used to make." All of the plant nutrients, the minor elements, and the still unknown and unidentified materials which are present are available to the plant only in the soup stock that bathes the roots.

The importance of water to the plant should never be lost sight of. It is a point of view too often neglected. The excesses and the deficiencies are left with a shrug of the shoulders to the "Whims of Mother Nature" or "An act of God."

Now all of this is passing and exact studies of moisture requirements and of means of supplying them are at hand. The irrigation practices of the West are moving into supplemental irrigation methods in the East. The engineer has added greatly to our knowledge and our skill. Movable pipe, sprinkler systems, soil moisture meters—all of these have helped, until today we think of controlling moisture requirements. We remove excesses by proper drainage, and we are beginning to supply moisture needs with great accuracy throughout the season.

Yes, water is the important constituent of the plant.

The Steadily Diminishing Labor Supply

BETWEEN 1940 and 1952 the total population of the nation increased by about 25 million persons, but the farm population decreased by six million. Recently people have been leaving the farms for the cities at the rate of three-quarters of a million persons a year. This is 62,500 a month or roughly 2,000 persons a day who have decided that city living is preferable to country living.

If this trend continues, growers of crops requiring large amounts of hand work must do two things: 1) explore ways and means of mechanizing production, and 2) devote more time and attention to recruiting labor and making workers satisfied with their jobs.

Great strides have been made in mechanization. Automatic spraying, chemical thinning, power pruners, and other devices have lightened the labor load. To keep workers on the farm, better housing, better recreational facilities, and more of the comforts of home have been provided.

How far we must go in this direction remains to be seen. The seemingly insurmountable obstacle to more mechanization is picking, but even this can be overcome by inviting the consumer to pick his own fruit. A willingness to try new ideas seems to be necessary to overcome the hurdle of labor shortages.

Fruit Talk

"We nowhere Art so triumphant see,
As when it grafts or buds the Tree."
—Abraham Cowley (1618-1667)

Japanese workers report that **melting snows** removed 406 pounds of dry soil per acre from a clean-cultivated apple orchard on a 28° slope.

Dr. M. Uota has demonstrated that high night temperatures (76° F.) inhibit red color formation in apples and increase the incidence of storage scald.

A. Ja. Kuzjmin from Russia reports the well-known curious but little-understood fact that new varieties frequently exhibit different characters (season of ripening, size, color, and so on) when they have settled down to an adult stage of growth from what the plant breeder saw when they were still in the juvenile condition.

Dr. T. Wallace, the popular **director** of the **Long Ashton Research Station (England),** has been made a Fellow of the Royal Society. This is a distinction not freely given to workers in applied fields. Says Dr. Wallace in a personal note: "The Book of Fellows, which each must sign, contains the signatures of all Fellows since the Society was founded by Charles II in 1662—and his signature is the first to grace the pages."

Early season leaf scorch symptoms of **magnesium deficiency** on apple trees have been shown by **Moon, Harley, and Regeimbal** of the **USDA** to be associated with the translocation of magnesium to the seeds of developing fruits.

J. D. Atkins in New Zealand has found that **apricot flowers** on vigorous one-year wood are more resistant to frost damage than flowers on older wood, and that wet blossoms are more rapidly cooled and injured than dry blossoms.

It is frequently forgotten that an **effective insect control program** is a great help in the control of **brown rot** in peaches.

A **two-hour fumigation** with **methyl bromide** at the rate of 20 grams per cubic meter killed **phylloxera** (root louse) in all stages on grape vines at **Odessa, USSR.**

From a report comes an interesting suggestion that products produced by three species of ***Penicillium,*** one found in soils, produce an antibiotic agent which is taken up by plants and is fairly effective as a systemic insecticide. (Organic gardeners please note!)

J. P. Martin and associates of the **Citrus Experiment Station in California** have reported an appreciable increase in **growth of citrus trees** in old citrus soils which have been fumigated, and that destruction of soil organisms best explains the stimulating effect.

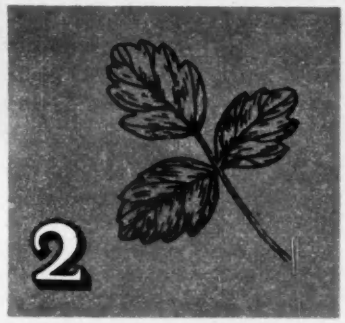
—H.B.T.

Coming Next Month

- Fruit Handling and Mechanization
- Cool Peaches Mean Cold Profits
- The Why and How of Marketing Agreements
- How California Growers Got Together to Keep Poor Peaches Off the Market
- Buyer's Guide

Du Pont "Ammate" Kills Roots and All

of 1. POISON IVY 2. POISON OAK 3. CHOKECHERRY



One Application Usually Does the Entire Job

For orchard brush control, you can't find a better product than Du Pont "Ammate" weed and brush killer. One spray application that wets the foliage of poison ivy, poison oak and other tough plants usually kills the tops *and* the roots.

"Ammate" saves you labor and time in several ways. Once over with "Ammate" usually does the brush-control job for several years, not for just one season. And "Ammate" kills more kinds of brush than most of the other spray chemicals of today. That makes it excellent to kill hedgerow growth and brush in fencerows, as well as brush within the orchard itself. "Ammate" is *the* product to kill chokecherry, so as to prevent the spread of "X" disease of peaches and cherries.

See your dealer now for "Ammate." Ask him for an informative folder on how to use this and other Du Pont pest-control products.

DU PONT CHEMICALS FOR THE FARM INCLUDE: *Fungicides:* PARZATE® (Liquid and Dry), FERMATE,® ZERLATE,® Copper-A (Fixed Copper), SULFORON® and SULFORON®-X Wettable Sulfurs... *Insecticides:* DEENATE® DDT, MARLATE® Methoxychlor, LEXONE® Benzene Hexachloride, KRENITE® Dinitro Spray, EPN 300 Insecticide, Calcium Arsenate, Lead Arsenate... *Weed and Brush Killers:* AMMATE,® 2,4-D, TCA and 2,4,5-T...*Also:* Du Pont Cotton Dusts, Du Pont Spreader-Sticker, PARMONE® Fruit Drop Inhibitor, and many others. ®REG. U. S. PAT. OFF.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

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Better Things for Better Living
. . . through Chemistry

If ever a truck was designed with a fruit grower in mind...

this new Ford Truck is it! A truck that is "right as rain" for fruit growing!
New, easy handling saves work and time in getting around on the farm.
New "DRIVERIZED" Cab offers a riding treat after hard chores in the orchard.
Ford Trucks are new throughout... designed to get farm jobs done fast.

Few people know the dollar-value of an hour's time as well as the American farmer does. There are many times when just one hour of his time is worth hundreds of dollars.

Time is money! Today's farmers know it. Ford Truck engineers know it. That's why TIME-SAVING was a major goal in designing the completely new Ford Trucks for 1953. With scores of new TIME-SAVING features, the new Ford Trucks are made-to-order for farm work.

New "DRIVERIZED" Cabs provide living-room comfort, cut driver fatigue. They help save time by making driving easier in many ways: Better visibility, for instance. Although the new curved one-piece windshield is the most obvious improvement, bigger windows at the sides plus a 4-ft. window at the rear, offer an amazing increase in all-around visibility.

The new Ford Truck seat is something special. Wider, of course. Non-sag seat springs. Adjustable seat cushion *and* separate adjustable back-rest. Most interesting new feature of all is that every seat now has an exclusive *shock snubber* to help level out the ride.

For easier maneuvering in tight quarters, between farm buildings, or in the field, turning diameter has been considerably reduced. This was done by "setting back" the front axle, widening the front tread, and by improving the steering geometry.

NEW "DRIVERIZED" CABS cut driver fatigue. Both Standard and Deluxe Cab (shown) have new curved one-piece windshield, 55% bigger; new wider adjustable seat; new seat *shock snubber;* new push-button door handles.

COMPLETELY NEW Ford Pickup with 6½-ft. box features new *bolted* construction, new clamp-tight tailgate. Choice of V-8 or Six. *Five* transmissions, including FORDOMATIC DRIVE and OVERDRIVE (extra cost).

Synchro-Silent type transmissions are now standard on all of the new truck models. This means faster shifting and less truck momentum lost. The shift lever on all 3-speed transmissions is mounted on the steering column, where it is easy to reach.

Fully automatic drive is now available in Ford half-ton trucks at extra cost. FORDOMATIC is a great time-saving convenience. More than that, it is a natural for field work because it permits low wheel speeds in rough going, without stalling the engine. A gas-saving, engine-saving OVERDRIVE transmission is also available at extra cost on Ford Series F-100.

Only Ford gives you a choice of V-8 or Six in five different engines. The new 101-h.p. overhead-valve "Cost Clipper Six" is the first and only high-compression, LOW FRICTION-type engine in any light-duty truck. The famous 106-h.p. Ford V-8, proved by billions of service miles, remains the farmers' favorite.

New Ford service accessibility saves time in the shop. Front ends have been redesigned. Hoods are wider. Frames are wider, too, permitting a new fender contour that makes engines much easier to get at.

NEW CLAMP-TIGHT tailgate on 6½-ft. Pick-up features rigid design to prevent sagging under load.

Now, with many more Ford Truck models to choose from, you can get the best truck for your work. A newly added 9-ft. Express, for example, should develop into a real farm favorite.

For free, detailed information, write: Ford Division of Ford Motor Co., Adv. Dept. T-38, Box 658, Dearborn, Mich. Specify your interest in light or heavy models. No obligation.

Fifty Years Forward on the American Road

FORD *ECONOMY* **TRUCKS**
SAVE TIME! SAVE MONEY! LAST LONGER!